Sir Serfojee Rajah

A

# COMPENDIUM

OF THE

# ANATOMY

OF THE

# HUMAN BODY.

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OF THE

# ANATOMY

OF THE

# HUMAN BODY.

INTENDED PRINCIPALLY FOR THE USE OF STUDENTS.

By ANDREW FYFE.

*IN TWO VOLUMES.*

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1800.

TO THE

# GENTLEMEN

ATTENDING THE MEDICAL CLASSES OF
THE UNIVERSITY OF EDINBURGH,

THE

## TWO FOLLOWING VOLUMES,

MEANT TO FACILITATE THEIR PROGRESS
IN THE STUDY OF ANATOMY,

ARE DEDICATED,

With much reſpect,

By their moſt obedient

And very humble Servant,

COLLEGE, Jan. 1. 1800. } ANDREW FYFE.

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# PART I.

OF

# THE BONES.

OF THE

# BONES IN GENERAL,

## WHICH ARE THE FIRMEST PARTS OF THE BODY,

AND

## SERVE FOR THE SUPPORT OF THE OTHER ORGANS,

*The following parts are to be attended to.*

THE *Radiated* appearance of the Fibres of broad Bones in Children.

The *Longitudinal Fibres*, forming the long Bones of Children.

The *Lamellæ*, in the long Bones of Adults.

The *Sides* of the long Bones in Adults, *thick* at the middle, and *thin* towards the extremities.

The *Reticular* Subſtance in the middle of long Bones.

The *Cancelli* in the extremities of long Bones.

The *Little Cavities* for containing Marrow and Veſſels in the moſt ſolid parts of the Bones.

The *Cancelli* between the Plates of the broad Bones.

The *Perioſteum* which covers Bones in general, and conveys Nutritious Veſſels into their Subſtance.

The *Perioſteum Internum*, or *Membrana Medullaris*, which lines the Reticulæ and Cancelli of Bones, and contains the Marrow.

The *Paſſages* of the principal Veſſels of Bones.

The *Holes* for the tranſmiſſion of Nerves which can be ſeen only in certain Bones.

The *Globules* of *Fat* which compoſe the Marrow.

The *Connection* of Bones by *Suture*, where no motion is allowed.

The *Connection* of Bones by *Cartilage*, where ſome motion is neceſſary.

The *Connection* of Bones by *Ligament*, where extenſive motion is required.

The *Cartilages* upon the ends of Bones, for the ſafe and eaſy motion of the Joints.

The *Perichondrium*, or *Membrane* covering the Cartilages,

lages, which in moveable Joints gives these Cartilages a great degree of smoothness.

The *Substances*, called *Glands* of the Joints, for the secretion of Synovia.

The *Epiphyses* upon the ends of moveable Bones in Children, for facilitating and hastening their ossification.

The *Epiphyses* changed into *Apophyses*, or *Processes*, upon certain parts of Bones of Adults, for the attachment of Muscles, &c. and which obtain particular names according to their appearances; as Coronoid, Condyloid, &c.

The numerous *Cavities* of Bones, as *Glenoid*, *Cotyloid*, &c. the names varying according to their appearances.

---

## OF THE SKELETON IN GENERAL.

The assemblage of Bones joined together to form a *Skeleton*.

A *Natural Skeleton*, or one joined together by its own Ligaments.

An *Artificial Skeleton*, or one joined together by Wire, &c.

The *Division* of the Skeleton into *Head*, *Trunk*, *Superior Extremities*, and *Inferior Extremities*.

OF

## OF THE SKULL IN GENERAL.

THE *Skull* divided into the *Cranium*, and *Bones of the Face*.

The *General Figure* of the *upper* part of the Cranium, compared to that of an Egg.

The flat form of the Cranium, *laterally*.

The *Smooth Surface* of the upper part of the Cranium, where it is little affected by Mufcular Fibres.

The *Periofteum of the Head*, called *Pericranium*.

The *under* and *outer Surface* of the Cranium, *irregular* where it gives attachment to Mufcles, &c. and paffages to Veffels and Nerves.

The *anterior* and *under* part of the Cranium, *hollow*, to make part of the Orbits.

The *pofterior* part of the Cranium, *marked* by Mufcles of the Trunk.

The *upper* and *inner* Surface of the Cranium, *hollow*, for lodging the Brain.

The *under* and *inner* Surface of the Cranium, with *unequal Cavities*, for lodging the Lobes of the Brain and Cerebellum.

The *Furrows* along the inner fide of the Cranium, for the reception of the Blood-veffels of the Dura Mater.

The *Sinuofities* upon the inner Surface of certain Crania, for lodging Luxuriances of the Brain.

The *Pits* feen in fome Crania, for lodging *Granulous Bodies* on the Dura Mater.

The *External Table* of the Cranium.

The *Internal Table* of the Cranium, called *Vitrea*, fomewhat thinner than the external.

The *Diploe*, or *Cancelli*, between the Tables of the Cranium.

The *Diploe* a-wanting in certain parts of the Cranium.

The Cranium in general compofed of *eight bones*, *fix* of which are faid to be proper to the Cranium, the *two* laft common to it and to the Face.

The *fix* proper to the Cranium are,

The *Os Frontis*, placed in the fore-part of the Cranium.

 The

The *two Ossa Parietalia*, placed in the upper and lateral parts of the Cranium.

The *two Ossa Temporum*, placed in the under and lateral parts.

The *Os Occipitis*, which forms the back and some of the lower part of the Cranium.

The *two Bones* common to the Cranium and Face are,

The *Os Ethmoides*, placed in the fore-part of the Base of the Cranium.

The *Os Sphenoides*, situated in the middle of the Base.

The *Sutures*, placed between the Bones of the Cranium, for allowing the Ossification to begin originally in different points, are, the *three True Sutures*, and *two False* or *Squamous Sutures*.

The *three True Sutures* are,

The *Coronal Suture*, placed between the Frontal and Parietal Bones, losing its serrated appearance near its terminations.

The *Lambdoid Suture*, lying between the Parietal, Temporal, and Occipital Bones.

The parts of the Lambdoid Suture, placed between the Occipital and Temporal Bones, called *Additamenta* of the Lambdoid Suture.

The *Sagittal Suture*, situated between the Parietal Bones.

The Sagittal Suture, sometimes *continued to the Nose*.

The *serrated appearance* of the True Sutures, seen distinctly on the *outside* of the Cranium only.

The *True Sutures*, having little of the serrated appearance on the *inside* of the Cranium.

The *two False Sutures*, placed between the upper Edge of the Temporal, and under Edge of the Parietal Bones.

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Additional Bones, called *Ossa Triquetra*, or Wormiana, sometimes found in the different Sutures, though most frequently in the middle of the Lambdoid Suture.

The

The *Sutures* ſaid to be *common* to the Bones of the Cranium and Face, are,

The *Ethmoid Suture*, which ſurrounds the Ethmoid Bone.

The *Sphenoid Suture*, which ſurrounds the Sphenoid Bone.

The *Tranſverſe Suture*, which runs acroſs the orbits and root of the Noſe, between the Frontal, Malar, Sphenoid, Ethmoid, ſuperior Maxillary, and Naſal Bones.

The *Zygomatic Sutures*, placed between the Temporal and Cheek Bones.

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## OS FRONTIS.

THE *ſituation* of the Os Frontis in the fore-part of the Cranium.

Its *Shape*, which has been compared to that of a Clam-ſhell.

Its *External Surface*, ſmooth and convex.

The external and internal *Angular*, or *Orbitar Proceſſes*.

The *Superciliary Ridges*, on which the Eye-brows are placed.

*Projections* over the Frontal Sinuſes.

The *Naſal Proceſs*, forming part of the Noſe.

Part of the *Temporal Proceſs*, or *Ridge* which forms the boundary between the Temporal and Frontal Muſcles.

The hollow *Orbitar Proceſſes*, or *Plates*, which form the upper part of the Orbits.

The *Sinuoſity* behind the upper end of the Superciliary Ridge, for lodging the Lacrymal Gland.

Behind each Internal Angular Proceſs a *ſmall Pit*, to which the Cartilaginous Pulley of the Superior oblique Muſcle is fixed.

The *Temporal Foſſa*, for lodging part of the Muſcle of that name.

The *opening* between the Orbitar Plates, for receiving the Cribriform Plate of the Ethmoid Bone.

The *Foramen Supra-Orbitarium*, through which a branch of the Ocular Artery, and part of the Ophthalmic Branch of the Fifth Pair of Nerves paſs to the ſoft parts of the Fore-head.

The *Foramen Orbitarium Internum, Anterius et Posterius*, through which small twigs of Nerves pass from the first part of the Fifth Pair, and of Arteries from the Ocular Artery into the Nose.

*Small Perforations* found upon the under and fore-part of the Frontal Bone, for the transmission of very minute Arteries or Nerves.

The *concave*, inner, and fore-part of the Os Frontis, for lodging the Anterior Lobes of the Brain.

The *eonvex* under parts, for supporting these Lobes, and covering the Eyes.

The *Ridges* and *Depressions* of rhe Orbitar Processes, marked by the Convolutions of the Brain.

Small *Furrows* on the inside of the Bone, for lodging the Blood-vessels of the Dura Mater.

Slight *Sinuosities*, more evident on the under than on the upper part of the Bone, occasioned by the Convolutions cf the anterior part of the Brain.

The *frontal Spine*, for the attachment of the Falx.

The *Frontal Furrow*, extending upwards from the Spine, for lodging the upper part of the superior Longitudinal Sinus.

The *Foramen Cæcum* at the under part of the Spine, for a process of the Falx of the Dura Mater, and small Blood-vessels.

The *Frontal Sinuses*, placed behind the inner ends of the Superciliary Ridges, and, in some Skulls, forming Prominences near the root of the Nose.

The *Walls* of the Sinuses, formed by a separation of the Tables of the Bone.

Their *Partition*, by which they are prevented from communicating with each other.

A *Communication* which they sometimes have with each other.

A *Passage* from each, leading into the Cavity of the anterior Ethmoid Cells, and from thence to the Nose. —The Sinuses add to the strength and melody of the voice.

In a Fœtus of nine months, the Os Frontis is composed of two Pieces.—The Superciliary Holes and Frontal Sinuses are not yet formed.

## *OSSA PARIETALIA.*

The *ſituation* of the Parietal Bones in the upper and lateral parts of the Cranium.

The *figure* of each Parietal Bone a Trapezium, or approaching that of a Square.

The *upper* Edge, longeſt.

The *anterior* Edge, next in length.

The *poſterior* Edge, ſhorter.

The *inferior*, ſhorteſt, and in form of a ragged arch, to be connected to the upper edge of the Squamous part of the Temporal Bone.

The *three firſt Edges* of the Bone *ragged*, where they aſſiſt in forming the True Sutures.

The *corners* of the Bone *obtuſe*, excepting the under and anterior, which forms a kind of proceſs.

The external *convex* ſmooth ſurface of the Bone.

The tranſverſe arched *Ridge*, or *Line*, placed externally, a little below the middle height of the Bone, for the origin of the Temporal Muſcle.

The *radiated Furrows* at the under part of the Bone, formed by the Fibres of the Temporal Muſcle.

The *Foramen Parietale*, for the paſſage of a Vein from the Integuments of the Head to the ſuperior longitudinal Sinus; and ſometimes for the tranſmiſſion of a ſmall Artery to the Falx of the Dura Mater.

The internal *concave* Surface of the Bone.

The *Furrows* made by the Blood-veſſels of the Dura Mater, the principal of which begin by a Trunk at the under and fore-part of the Bone.

The *depreſſion* at the upper Edge of the Bone, which is moſt diſtinctly ſeen when the Bones are conjoined, for the attachment of the Falx, and lodgement of the ſuperior longitudinal Sinus.

The *Foſſa* at the under and back part of the Bone, for lodging a ſmall part of the lateral Sinus.

Numerous *depreſſions* found on the inſide of the Bone, occaſioned by the prominences of the Brain.

The *connection* of the Parietal Bones to the Frontal one, by the Coronal Suture,—to each other by the Sagittal Suture.

In the Fœtus the ſides of the Parietal Bones are incomplete, and there is no Parietal Hole.

Between the Parietal Bones and the middle of the Os Frontis, there is a *Membranous Subſtance* filling the interſtice, and getting the name of *Bregma*, *Fons*, or *Fontanella*, from its having been ſuppoſed by the Ancients that the ſuperfluous humours of the Brain are evacuated through it.

## *OS OCCIPITIS.*

THE *ſituation* of the Occipital Bone in the back and under part of the Cranium.

Its *rhomboid* figure.

The two lateral *Angles*.

The external Surface, *convex* and *ſmooth* at the upper part.

The *large arched Ridge*, near the middle of the convex Surface, to the center of which the Trapezii Muſcles are fixed, the outer parts giving origin to the Occipito-Frontalis.

The *ſmaller Arch*, under the former.

The *depreſſions* between the large and ſmall Arches, for the connection of the Complexi.

The *impreſſions* between the Arches and the Temporal Bones, for the attachment of the Splenii.

*Cavities* between the ſmaller Arch and the Foramen Magnum, for the reception of the Recti Minores.

The *perpendicular Spine*, between the Muſcles of the oppoſite Sides.

The *unequal Edges* of the Foramen Magnum, for the inſertion of Ligaments, by which the Head is fixed to the Vertebræ of the neck.

The *inferior Angle*, called Cuneiform or Baſilar Proceſs.

The *unequal Surface* of the Cuneiform Proceſs, for the attachment of the Recti Anteriores Muſcles.

The *Condyles* placed at the Baſe of the Cuneiform Proceſs, and ſides of the Foramen Magnum, for the articulation with the firſt Vertebra of the Neck.

The *oval form* and ſmooth Cartilaginous Surface of the condyles, correſponding with the ſuperior articulating Proeeſſes of the firſt Vertebra.

The *rough Edges* of the Condyles, for the attachment of their Capſular Ligaments.

The

The *rough Surface* between the Condyles and Maſtoid Proceſſes of the Temporal Bones, for the inſertion of the Recti Capitis Laterales Muſcles.

The *internal Surface* of the Bone, *hollow*, for containing the back-part of the Brain and Cerebellum.

The *Cruciform Spine* of the inner ſide.

The *upper Limb* of the perpendicular Spine, *hollow* in the middle, or frequently at one ſide, for the reception of the ſuperior-longitudinal Sinus, and the attachment of the Falx.

The *lateral Limbs* placed oppoſite to the great external arched Spine, and hollow in the middle, for containing the lateral Sinuſes, and giving attachment to the Tentorium of the Dura Mater.

The *lower Limb* of the perpendicular Spine, for the attachment of the Falx Minor.

The *Foſſæ* at the ſides of the upper Limb, for containing the poſterior Lobes of the Brain.

The *Foſſæ* at the ſides of the lower Limb, for containing the Cerebellum.

The *concave Surface* of the Cuneiform Proceſs for receiving the Medulla Oblongata, and Baſilar Artery.

The *depreſſions* at each ſide of the Cuneiform Proceſs, where the inferior Petroſal Sinuſes are placed.

The *Foramen Magnum*, behind the Baſilar Proceſs, and at the ſides of the Condyles, for the paſſage of the Medulla Oblongata, Vertebral Veſſels, and Acceſſory Nerves.

The *ſuperior* or *anterior Condyloid Foramina*, for the paſſage of the Ninth Pair of Nerves.

The *poſterior Condyloid Foramina*, for the paſſage of Veins into the Lateral Sinuſes.

The *connection* of the Bone to the Oſſa Parietalia, by the Lambdoid Suture.

In the Fœtus the Occipital Bone is divided into *four pieces*; the firſt reaching from the middle of the Lambdoid Suture to the Foramen Magnum, the ſecond and third are placed at the ſides of that Foramen, and the fourth forms the Cuneiform Proceſs.

OSSA

## *OSSA TEMPORUM.*

The *Situation* of each Temporal Bone in the under part of the ſide of the Cranium.

The *Squamous Plate*, which forms a part of the Temple, and gives origin to a portion of the Temporal Muſcle.

The *Maſtoid Proceſs*, at the under and back-part of the Bone, giving inſertion to ſtrong Muſcles, and containing Cells which communicate with each other, and with the Cavity of the Tympanum.

The *Pars Petroſa*, hard like a rock, and placed at the baſe of the Bone, from which it runs obliquely forwards and inwards, and contains the internal Organ of hearing; to be afterwards deſcribed.

The *Zygomatic Proceſs*, running from the under and fore-part of the Squamous Plate, to join the Os Malæ, and form an Arch, under which the Temporal Muſcle paſſes to the Lower Jaw.

A *Tubercle* at the root of this Proceſs, covered with Cartilage, and making part of the Articulation of the Lower Jaw.

The *Styloid Proceſs*, placed at the root of the Pars Petroſa, and going obliquely downwards and forwards, to give origin to Muſcles which belong to the Tongue and Throat.

The *Vaginal Proceſs*, of an inconſiderable ſize, ſurrounding the root of the Styloid Proceſs.

The *Rough Margin* at the under part of the external Meatus, ſometimes alſo conſidered as a Proceſs, and called *Auditory*.

A *Groove*, at the under part of the root of the Maſtoid Proceſs, giving origin to the Digaſtric Muſcle.

The *Glenoid Cavity*, lined with Cartilage at the root of the Zygoma, for the articulation of the Lower Jaw.

The *Glenoid Fiſſure*, at the back-part of this Cavity, for the attachment of the Capſular Ligament of the articulation of the Jaw.

A *Depreſſion* between the articular Cavity and Styloid Proceſs, for lodging a portion of the Parotid Gland.

The *Thimble-like Cavity*, or the *Jugular Foſſa*, at the inner ſide of the root of the Styloid Proceſs, for lodging the top of the internal Jugular Vein.

*Meatus*

*Meatus Auditorius Externus*, between the Maſtoid and Zygomatic Proceſſes, leading inwards and forwards to the Organ of hearing.

*Foramen Stylo-Maſtoideum*, or *Aquæduct* of *Fallopius*, between the Styloid and Maſtoid Proceſſes, for the tranſmiſſion of the Portio Dura of the Seventh Pair of Nerves.

The *Foramen Caroticum*, at the inner and fore-part of the Jugular Foſſa, leading upwards, then forwards through the point of the Pars Petroſa, for the tranſmiſſion of the internal Carotid Artery to the Brain.

*Iter a Palato ad Aurem*, or *Euſtachian Tube*, between the Fiſſure for the Capſular Ligament of the Lower Jaw, and the Paſſage of the internal Carotid Artery; and, in the Subject, by the addition of a Cartilage, formed into a trumpet-like Tube, which conveys air from the Noſe to the Tympanum of the Ear.

*Foramen Maſtoideum*, occaſionally found at the back-part of the Maſtoid Proceſs, or in the Lambdoid Suture. When preſent, it ſometimes tranſmits an Artery to the Dura Mater, but more commonly a Vein from the Integuments of the Head to the lateral Sinus.

The *upper* and *inner Edge* of the Squamous plate formed into *ridges* and *furrows*, where it is connected with the Parietal Bone.

The *inner Surface* of the Squamous Plate, *unequal* where it is marked by the Convolutions of the Brain, and by the Arteries of the Dura Mater.

The *anterior* and *outer Surface* of the Pars Petroſa, oppoſed to the lateral Lobes of the Brain.

The *poſterior* and *inner Surface* of the Pars Petroſa, oppoſed to the Cerebellum.

A *Ridge* between the two Surfaces of the Pars Petroſa, for the attachment of the Tentorium.

A *Groove* upon the ridge of the Pars Petroſa, for lodging the ſuperior Petroſal Sinus.

*Foſſa*, at the root of the poſterior Surface of the Pars Petroſa, and oppoſite to the Maſtoid Proceſs, for lodging the lateral Sinus, where it turns downwards to go out of the Cranium.

*Meatus Auditorius Internus*, or *Foramen Auditivum*, in the poſterior Surface of the Pars Petroſa, for the paſſage of the Seventh Pair of Nerves.

*Foramen Innominatum*, in the anterior Surface of the

Pars Petroſa, for the paſſage of a reflected Nerve from the Fifth to the Seventh Pair.

*Foramen Lacerum Poſterius*, or *Hole* common to the Pars Petroſa and Cuneiform Proceſs of the Occipital Bone, for the paſſage of the lateral Sinus, Eighth Pair, and acceſſory Nerves.—The Nerves paſs through the fore-part of the Hole, and are ſeparated from the Sinus by a Proceſs of the Dura Mater.

The *Connection* of the Bone, by its upper curved Edge, to the Parietal Bone by the Squamous Suture.

To the under and back-part of the Parietal Bone, by the Additamentum of the Squamous Suture.

To the Occipital Bone, by the Additamentum of the Lambdoid Suture.

In a Fœtus, the Squamous is ſeparated from the Petrous part by a Fiſſure. There is no appearance of Maſtoid or Styloid Proceſs, and, inſtead of a Meatus Externus, there is only a Ring of Bone, in which the Membrana Tympani is fixed.

## *OS ETHMOIDES.*

The *Situation* of the Ethmoid or Cribriform Bone in the fore-part of the Baſe of the Cranium.

Its *Cuboid Figure*.

The *Cribriform Plate*, perforated with many holes, for the tranſmiſſion of the Firſt, or Olfactory Pair of Nerves.

The *Criſta Galli* ariſing from the middle of the Cribriform Plate, to give attachment to the Falx of the Dura Mater.

A *Notch* at the fore-part of the root of the Criſta Galli, contributing, in a very ſmall degree, to the formation of the Foramen Cæcum of the Frontal Bone.

The *Naſal Plate*, extending downwards from the baſe of the Criſta Galli, to form the upper and back-part of the Septum, or Partition of the Noſtrils.

The *Ethmoid Cells* placed under the Cribriform Plate, a little to the outſide of the Naſal Lamella, ſeparated from each other by thin Plates, and ſerving the ſame purpoſes as the Frontal Sinuſes.

Their *Communications* with each other, with the Frontal Sinus, and alſo with the Cavity of the Noſe.

The

The *Os Spongiosum*, or *Turbinatum Superius*, hanging down from the œthmoid Cells at the side of the Nasal Lamella, for enlarging the organ of smell.

Its *Triangular form* and *Spongy texture*.

Its *Convexity* towards the Septum, and *Concavity* outwards.

The *Os Planum*, or *Orbitar Plate*, for covering a large share of the œthmoid Cells, and forming the greater part of the inner side of the Orbit.

The *Connection* of the Cribriform Plate to the Orbitar Plates of the Frontal Bone, by the œthmoid Suture; and to the Sphenoid Bone, by a Suture common to the two Bones, but generally considered as belonging to the latter.

The *Connection* of the Os Planum to the Orbitar Plate of the Frontal Bone, by part of the Transverse Suture.

The *posterior Edge* of the Nasal Plate, joined to the Processus Azygos of the Sphenoid Bone.

Its *upper Edge*, joined to the Nasal Process of the Frontal and Nasal Bones.

Its *anterior Edge*, joined to the middle Cartilage of the Nose.

In the Fœtus, the œthmoid Bone is divided into two by a Cartilaginous Partition, which afterwards forms the Nasal Plate and Crista Galli.

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## *OS SPHENOIDES.*

The *Situation* of the Sphenoid, Cuneiform, or Wedge-like Bone, in the middle of the Cranium.

Its *Irregular Figure*, compared to that of a Bat with extended wings.

The *Temporal Plate*, *hollow*, for lodging a share of the Temporal Muscle.

The *Orbitar Plate*, which forms a portion of the Orbit.

The *Spinous Process*, at the under and back-part of the Temporal Process.

The *Styloid Process*, at the point of the Spinous Process.

The *Pterygoid*, or *Aliform Process*, composed of two Plates, which are compared to the wings, though more properly resembling the feet of the Bat.

 The

The *external Plate*, *broad* and *hollow* without, where the external Pterygoid Muſcle has its origin.

The *internal Plate*, *narrower* and *longer* than the external, and, with its fellow, forming the back-part of the Noſe.

A *Hook-like Proceſs* upon the internal Plate, over which the Circumflex Muſcle of the Palate moves.

The *Foſſa Pterygoidea*, between the Pterygoid Plates, giving riſe to the internal Pterygoid Muſcle.

A *Groove* between the root of the Styloid Proceſs, and that of the internal Pterygoid Plate, aſſiſting in the formation of the Euſtachian Tube.

The *Triangular Proceſs*, which adheres to the body of the Sphenoid, and to the œthmoid Bone, and which is conſidered as one of the Bones of the Face.

The *Proceſſus Azygos*, ſtanding ſingle, and projecting from under the middle and fore-part of the Bone.

The *Clinoid Proceſſes*, compared to the ſupporters of a Bed, of which there are

*Two Anterior*, terminating each in a point, which obtains the name of *Tranſverſe Spinous Proceſs*. The *third* is

The *Poſterior Clinoid Proceſs*, ſituated tranſverſely, ſomeway behind the anterior Proceſſes, and frequently ending in two knobs, which incline obliquely forwards.

*Proceſſus Olivaris*, conſidered by ſome as a fourth Clinoid Proceſs, lying between the poſterior points of the anterior Clinoid Proceſſes.

Between the anterior Clinoid Proceſſes, a *ſmall-pointed Proceſs* frequently juts forwards, to join the Cribriform Plate of the œthmoid Bone.

The *Temporal Foſſa* of this Bone, which lodges a ſhare of the lateral Lobe of the Brain.

A *Foſſa* between the anterior Clinoid Proceſſes, where part of the anterior Lobes of the Brain reſts.

A *Depreſſion* before the Proceſſus Olivaris, where the conjoined Optic Nerves lie.

The *Sella Turcica*, *Ephippium*, or *Turkiſh Saddle*, between the Proceſſus Olivaris and poſterior Clinoid Proceſs, for lodging the Glandula Pituitaria.

A *Depreſſion* upon the ſide of the poſterior Clinoid Proceſs and Sella Turcica, formed by the internal Carotid Artery.

The *Foramen Opticum* under the anterior Clinoid Proceſs, for the tranſmiſſion of the Optic Nerve and Ocular Artery.

 The

The *Foramen Lacerum Superius*, or *ſuperior Orbitar Fiſſure*, under the anterior Clinoid Proceſs, and its tranſverſe ſpinous part, for the paſſage of the Third, Fourth, firſt part of the Fifth, and the Sixth Pair of Nerves, and the Ocular Vein.

The *Foramen Rotundum*, a little behind the Foramen Lacerum, for the paſſage of the ſecond part of the Fifth Pair of Nerves.

The *Foramen Ovale*, farther back, and more external than the Rotundum, for the paſſage of the third part of the Fifth Pair of Nerves, and commonly for the paſſage of the Veins which accompany the principal Artery of the Dura Mater.

The *Foramen Spinale*, in the Point of the Spinous Proceſs, for the tranſmiſſion of the principal Artery of the Dura Mater.

The *Foramen Pterygoideum*, at the root of the inner Plate of the Pterygoid Proceſs, for the paſſage of a reflected branch of the ſecond part of the Fifth Pair of Nerves.

Sometimes one or more ſmall paſſages are obſerved in or near the Sella Turcica, for the tranſmiſſion of Blood-veſſels into the Sphenoid Sinus, or to the ſubſtance of the Bone.

The *Foramen Lacerum Anterius*, common to the point of the Pars Petroſa, and to the Sphenoid and Occipital Bones.

In a recent Skull, this Hole is filled with a Cartilaginous Ligament, which drops out by maceration.

The *Sphenoid Sinus*, in the body of the Bone, at the under and fore-part of the Sella Turcica.

A *complete Partition* between the right and left Sphenoid Sinuſes.

The *Paſſage* from the upper and fore-part of the Sphenoid Sinus, into the upper and back-part of the Noſe.

The *Subſtance* of the Bone, the moſt unequal of any in the Body, ſome parts being extremely thin, while others are thicker than moſt parts of the Cranium.

The *Connection* of the Bone to all the other Bones of the Cranium, by the Sphenoid Suture.

In the Fœtus, the Temporal Wings are ſeparated from the Body of the Bone by Maceration, and there are no Sphenoid Sinuſes.

## *THE BONES OF THE FACE.*

THEY are *divided* into the *Upper* and *Under Jaws.*

The Upper Jaw is *compoſed* of *ſeven pairs of Bones*, and *one without a fellow*, viz.

*Two Oſſa Naſi ; Two Oſſa Unguis ; Two Oſſa Malarum ; Two Oſſa Maxillaria Superiora ; Two Oſſa Palati ; Two Oſſa Spongioſa Inferiora ; Two Triangular Bones*, placed at the ſides of the Sphenoid Sinuſes ; and the *Vomer.*

The Lower Jaw conſiſts of *a ſingle Bone.*

### The Os NASI.

Its *Situation* in the upper and fore-part of the Noſe.

Its *Oblong Form.*

The *thick, ragged*, upper end.

The *thin* inferior extremity.

Its *external Convexity.*

Its internal *Concavity*, where it forms part of the Cavity of the Noſe.

The *Spinous Proceſs*, which forms part of the Partition of the Noſe.

One or more *Holes* externally, for tranſmitting Veſſels into the Bone.

Its *Connection* to the Frontal Bone by the Tranſverſe Suture.

*Connection* to its fellow by the anterior Naſal Suture.

### OS UNGUIS, OR LACRYMALE.

Its *Situation* at the inner and fore-part of the Orbit.

The *Diviſion*, externally, into *two depreſſed Surfaces* and a *middle Ridge.*

The *poſterior Depreſſion*, forming part of the Orbit.

The *anterior Depreſſion*, lodging part of the Lacrymal Sac and Duct, and perforated by ſmall Holes, through which Fibres paſs, to make a firm connection between the Bone and its inveſting Membrane.

The *inner Surface*, compoſed of a *Furrow* and *two irregular convex Surfaces*, correſponding with the anterior Ethmoid Cells.

The *Subſtance* of the Bone is the *thinneſt* and *moſt brittle* of any in the Body.

It

It is *connected* to the Frontal Bone, by the Tranſverſe Suture, and to the Os Planum by the Ethmoid Suture.

*Internally*, it is connected with the Ethmoid Cells.

### Os Malæ.

Its *Situation* in the outer part of the Cheek.

The *external, convex, ſmooth Surface.*

The *poſterior hollow Surface*, for lodging part of the Temporal Muſcle.

The *ſuperior Orbitar Proceſs*, forming part of the outſide of the Orbit.

The *inferior Orbitar Proceſs*, forming part of the lower Edge of the Orbit.

The *Maxillary Proceſs*, forming the under part of the Prominence of the Cheek.

The *Arch* between the Orbitar Proceſſes, which forms near a third part of the anterior circumference of the Orbit.

The *Zygomatic Proceſs*, forming part of the Arch over the Temporal Muſcle.

The *Internal Orbitar Plate*, forming the outer and fore-part of the Orbit.

A *Paſſage* through the Bone, for the tranſmiſſion of ſmall Veſſels or Nerves from the Orbit to the Face.

The *Connection* of the ſuperior Orbitar Proceſs and internal Orbitar Plate, to the frontal and Sphenoid Bones, by the tranſverſe Suture.

The *Connection* of the Zygomatic Proceſs to the Temporal Bone, by the Zygomatic Suture.

### Os Maxillare Superius.

The *Situation* in the fore-part of the upper Jaw, and ſide of the Noſe.

Its *Size*, the largeſt of the Bones of the upper Jaw.

The *Naſal*, or *angular Proceſs*, forming part of the ſide of the Noſe, and of the inner part of the Orbit.

A *Ridge* at the under and inner part of the Naſal Proceſs, for ſupporting part of the Os Spongioſum inferius.

The *Orbitar Plate*, forming a large ſhare of the under ſide of the Orbit.

The *Malar Proceſs*, *unequal* and *ragged*, where it contributes, with the Os Malæ, to form the Prominence of the Cheek.

The *Tuberoſity*, or *bulge* at the back-part of the Bone.

The

The *Alveolar Arch*, of a ſpongy nature, where the Sockets of the Teeth are placed.

The *Palate Proceſs*, forming part of the Roof of the Mouth, and of the bottom of the Noſe.

The *Naſal Spine*, contributing, in a ſmall degree, to the formation of the Septum of the Noſe.

A *Depreſſion* behind the Malar Proceſs, where the under end of the Temporal Muſcle plays.

A *Depreſſion* at the under and fore-part of the Malar Proceſs, where the Muſcles which raiſe the Upper Lip, and corner of the Mouth, originate.

A *Cavity* formed by the Palate Plate.

A *Notch* forming the under and fore-part of the Noſtril.

The *Alveoli*, or *Sockets* for the Teeth, the number of Sockets correſponding to the Fangs of the Teeth.

The *Lacrymal Groove*, which, with that of the Os Unguis, forms a paſſage for the Lacrymal Duct into the Noſe.

A *Canal* in the Orbitar Plate, terminating anteriorly by the *Foramen Infra Orbitarium*, through which the Infra-Orbitar branch of the ſecond part of the Fifth Pair of Nerves, with a branch of the internal Maxillary Artery, paſs to the Face.

The *Foramen Inciſivum*, or *Palatinum Anterius*, behind the fore-teeth, common to both bones below, but proper to each above, and filled with a Proceſs of the ſoft Palate, and with ſmall Veſſels and Nerves, which run between the Membranes of the Mouth and Noſe.

In ſome Subjects, there is a diſtinct *Ductus Inciſivus*, leading from one or from each Noſtril into the cavity of the Mouth, ſimilar to that which is always found in the large Quadrupeds.

A ſmall *Hole* commonly found in the Naſal Proceſs, and ſome *minute Paſſages* at the back-part of the Tuberoſity, for the tranſmiſſion of Blood-veſſels and Nerves into the Subſtance of the Bone, or Antrum Maxillare.

*Sinus Maxillaris*, *Antrum Maxillare*, or *Highmorianum*, ſituated under the Orbitar Plate, and above the large Dentes Molares, for the ſame purpoſes as the other Sinuſes of the Head.

The *Opening* of the Sinus, large in the ſeparate Maxillary Bone, but, in the connected ſtate, ſo covered by the inferior ſpongy, and Palate-Bones and Membranes, as to leave only a ſmall Aperture between the Oſſa

Spongioſa

Spongiosa superius and inferius, into the cavity of the Nose.

The *Connection* of the Os Maxillare superius, to the Frontal Bone, by the transverse Suture;—to the Os Unguis, by the Lacrymal Suture;—to the Os Nasi, by the lateral Nasal Suture;—to the Cheek-bone, by the external Orbitar Suture;—to the Os Planum, by the Ethmoid Suture;—to its fellow, by the longitudinal Palate Suture.

Anteriorly, between the Mouth and Nose, the Bones are joined together by the Mystachial Suture.

In the Fœtus, there are Six Sockets for the Teeth. There is no Tuberosity, and the Maxillary Sinus is only beginning to form.

## Os Palati.

Its *Situation* in the back-part of the Palate.

The *Oblong Form* of the Palate-Plate, which forms the back-part of the Osseous Palate.

Its *posterior curved Edge*, where it is connected with the Velum Palati; also the *Point* at the inner extremity of the curve, for the origin of the Muscle of the Uvula.

Its *thick, strong Substance*, where it joins its fellow.

Its *Spinous Process* at the inner Edge of the Palate-Plate, joining the under Edge of the Vomer.

The *Pterygoid Process*, of a *Triangular form*, with *Fossæ* corresponding to the Pterygoid Plates of the Sphenoid Bone.

The *Nasal Plate*, forming a portion of the side of the Nose, and Antrum Maxillare.

A *Ridge* on the inside of this Plate, upon which the back-part of the inferior spongy Bone rests.

The *Orbitar Processes* at the upper and back-part of the Nasal Plate, contributing a little in the formation of the Orbit, and of the Ethmoid and Sphenoid Sinuses.

A *Notch* between the Orbitar Processes, forming part of the *Foramen Spheno-Palatinum*, for the passage of the lateral Nasal Vessels and Nerve.

*Foramen Palatinum posterius*, at the outer end of the Palate-Plate of this Bone, but common to it and the Maxillary Bone, for the transmission of the Palatine Vessels and Nerves.

A *small Hole* frequently observed behind the former, and communicating with it, for the passage of a branch of the Palatine Nerve.

*Foramen*

*Foramen Spheno-Maxillare, Lacerum Inferius,* or *Inferior Orbitar Fiſſure,* at the under and outer part of the Orbit, and common to the Cuneiform, Maxillare, Malar, and Palate Bones, for lodging fat, and tranſmitting ſmall twigs of Veſſels and Nerves into the Orbit.

The *Connection* of the Os Palati to the Palate-Plate of the Maxillary Bone, by the tranſverſe Palate Suture;—to the Maxillary Bone, at the ſide of the Noſe and bottom of the Orbit, by the Palato-maxillary Suture;—to the Pterygoid Proceſs of the Sphenoid Bone, by the Sphenoid Suture;—to the Os Planum and Ethmoid Cells, by the Ethmoid Suture;—to its fellow, by the longitudinal Palate Suture.

## Os Spongiosum, or Turbinatum Inferius.

Its *Situation* in the under part of the ſide of the Noſe.

Its *Triangular form* and *ſpongy* appearance.

Its *Convexity* towards the Septum Naſi, and *Concavity* outwards.

The *two Proceſſes* at the upper part of the Bone, the anterior forming part of the Lacrymal Groove, and the poſterior part of the Wall of the Maxillary Sinus.

This Bone is *connected* to the Os Maxillare, Os Palati, and Os Unguis, by a diſtinct Suture in a young ſubject, but in an old perſon, it grows firmly to theſe Bones by an union of ſubſtance.

## Sphenoidal Cornu, or Os Triangulare.

The *Situation* of the triangular Bone between the body of the Sphenoid Bone and root of its internal Pterygoid Proceſs, covering the under part of the Sphenoid Sinus.

The *Connection* to the back-part of the Ethmoid Bone. —In an old perſon this Bone grows ſo firmly to the Sphenoid Bone, as to be conſidered by ſome authors as one of its Proceſſes.

## Vomer.

Its *Situation* in the under part of the Septum Naſi, where it ſeparates the Noſtrils from each other.

It is frequently bent to one ſide, in which caſe the one Noſtril is rendered larger than the other.

Its *Form,* compared to that of the Plough-ſhare.

The *Superior* and *Poſterior* part, *thick* and *ſtrong,* with

a

a *Furrow* to receive the Proceſſus Azygos of the Sphenoid Bone.

The *Superior Part*, with a *Furrow* to receive the Naſal Plate of the Ethmoid Bone and Cartilage of the Noſe.

The *Inferior Edge* connected with the ſpinous Proceſſes of the Palate and Maxillary Bones.

The *Poſterior Edge*, unconnected with any other Bone, and turned to the Cavity of the Fauces.

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## *MAXILLA INFERIOR.*

THE *Figure* of the Maxilla Inferior, or Lower Jaw, compared to that of the Greek *υ*.

Its *Diviſion* into *Chin*, *Sides*, and *Proceſſes*.

The *Chin*, extending between the Mental Foramina.

The *Side* reaching from the Mental Foramen to the back-part of the Bone.

A *tranſverſe Ridge* on the fore-part of the Chin, with depreſſions on each ſide, for the origin of the Muſcles of the Under Lip.

*Small Prominences* and *Depreſſions* on the under and back-part of the Chin, for the attachment of the Fræ-num Linguæ, and ſeveral Muſcles which belong to the Throat.

The *Baſe*, or *loweſt Part*, forming the under boundary of the Face.

The *Angle* of the Jaw at the back-part of the Baſe.

*Impreſſions* made by the Maſſeter Muſcle, upon the Plate which ariſes from the angle of the Jaw.

The *Condyloid* or *Articular Proceſs*, with an oblong ſmooth cartilaginous Surface, placed upon a Cervix at the upper and back-part of the Bone.

The *Coronoid Proceſs*, ſituated a little before the Condyloid, for the inſertion of the Temporal Muſcle.

The *Situation* of the Coronoid Proceſs behind the Zygoma.

A *Semilunar Notch* between the Proceſſes.

The *Alveolar Proceſs*, at the upper edge of the Bone, and the Alveoli ſimilar to thoſe of the Upper Jaw.

The *Sockets* worn down by old age, in conſequence of which the Jaw becomes narrower and more prominent.

The

The *posterior Maxillary Foramen* at the root of the Condyloid and Coronoid Processes, upon the inner side of the Jaw, for the passage of the Third, or inferior Maxillary Branch of the Fifth Pair of Nerves, with corresponding Blood-vessels.

A *small-pointed Process* at the inner edge of this Hole, where a Ligament goes off to be fixed to the Temporal Bone.

Above the Hole, the Bone is *marked* by the passage of the Nerve and Vessels, and below it, there is commonly a *small Furrow* pointing out the course of a Nerve which goes to a Muscle and Gland under the Tongue.

Between the posterior Maxillary Foramen and the angle, the Bone is *marked* by the insertion of the Internal Pterygoid Muscle.

The *Anterior Maxillary Foramen*, or *Mental Hole*, at the side of the Chin, where the remains of the Inferior Maxillary Nerve and Vessels come out.

Between the Posterior and Anterior Foramina, the *Inferior Maxillary Canal* runs in the substance of the Bone, a little below the roots of the Teeth, and has many perforations, for the passage of small branches of Vessels and Nerves which supply the Jaw and Teeth.

The *Surface* of the Jaw is remarkably *hard*, and within, it has *numerous cells* which surround the Maxillary Canals, and communicate with each other at the forepart of the Bone.

The *Articulation* of the Jaw by its Condyloid Processes, with the Glenoid Cavity of the Temporal Bone, and also with the Tubercle at the root of its Zygomatic Process.

An *intermediate moveable Cartilage*, placed in the Articulation of the Lower Jaw, allowing the Condyle to remain in the Glenoid Cavity, in the gentler motions of the Jaw, but admitting it to advance upon the Tubercle, or root of the Zygoma, when the mouth is widely opened.

In a Fœtus, the Lower Jaw is composed of two pieces joined together in the middle of the Chin, by the intervention of a Cartilage, which gradually ossifies, and leaves no mark of division.—The Cavities for the Teeth are the same as in the Upper Jaw.

THE

## *THE TEETH.*

The *Situation* of the Teeth in the Alveoli of the Jaws.

The *Number* of the Teeth, *Sixteen* in each Jaw.

The *Base*, or *Body* of each Tooth, which appears without the Sockets.

The *Roots* or *Fangs*, placed in the Sockets, and of a *Conical* form.

The *Neck* or *Collar* of the Teeth.

The *Sockets* are lined with a *Vascular Membrane*, which serves as a *Periosteum* to the Teeth.

The *Cortex*, or *Enamel*, which covers the base of each Tooth, and becomes gradually thinner towards the Cervix.

The *Fibres* of the Enamel are placed perpendicular to the Osseous Substance, to diminish the effects of Friction.

The *Fibres* of the Osseous Part of the Teeth form Lamellæ, which run in the direction of the surface of the Teeth.

A *Foramen* in the point of the root of each Tooth, and a passage leading from it into a common Cavity in the Base of the Tooth, for lodging the Vascular and Nervous Pulp of the Teeth.

The *Division* of the Teeth into *Three Classes*, viz.

—On each side of each Jaw,—

*Two Incisores*, or *cutting Teeth ; One Caninus*, *Cuspidatus*, or *Dog's Tooth ; Two Bicuspides*, or *small Anterior Molares*, or *Grinding Teeth ; and Three large Posterior Molares*, or *principal Grinders*.

The Incisores, having their *Bases* formed into *Wedges*, which are sloped out behind.

The Caninus, having its *Base* in form of a *Wedge pointed in the middle*.

The small Molares, each with *double points*, which, in the Upper Jaw, are nearly upon a level, but, in the Under Jaw, highest on the outside of the Teeth.

The Incisores, Caninus, and small Molares, with *single roots*, excepting the small Molaris of the *Upper Jaw*, which has frequently *two roots*.

Of the three posterior, or lower Molares of the *Under*

*Jaw* ; the firſt has *five points*, and each of the other two has *four points*.

Each of theſe three Teeth has *two*, *three*, or ſometimes *four roots*.

In the *Upper Jaw*, the firſt large Molaris has only *four points*, and each of the other two only *three points*.

In each of theſe three Teeth, there is generally *one root more* in thoſe of the *Upper*, than in the correſponding Teeth of the *Under Jaw*.

The laſt, or backmoſt Molaris, called *Sapiens*, from its appearing much *later* than the reſt, is *ſmaller* and has generally *fewer roots*.

The Teeth are *connected* to the Sockets by *Gomphoſes*, (like a nail fixed in a board), and by a firm adheſion to the Gums.

In the Fœtus, the outer Shell only of five deciduous Teeth, and of one permanent Tooth, in each ſide of each Jaw, is found.

Theſe Teeth are ſituated in Capſuls, within the Jaw, and under its ſurface. At this period there are no roots formed.

Between the inner ſide of the deciduous Teeth and the Alveoli, in the Fœtus, little Capſuls are placed, and connected by Proceſſes with the Gums, in which the Inciſores and Canini are afterwards formed ; but at this time there is no appearance of the rudiments of any of the Teeth. *See Dr Blake's Theſis*, 1798.

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## *OS HYOIDES.*

The *Situation* of the Os Hyoides, at the root of the Tongue and top of the Larynx, where it ſerves as a Lever, allowing ſeveral Muſcles, moving theſe parts, to be fixed to it.

The *Shape*, compared to that of the Greek letter *υ*.

The *Body* of the Bone, *convex* before, and *concave* behind.

Several impreſſions are ſeen on its Body, occaſioned by the numerous Muſcles fixed to it.

The *Cornua*, extending backwards and upwards from each ſide of the Body.

The

The *Appendices*, placed at the upper part of the Articulation between the Body and Cornua.

From each Appendix a *Ligament* ſent up to the Styloid Proceſs of the Temporal Bone.

The Os Hyoides is not immediately connected to any other Bone, but is kept in its place by numerous Muſcles and Ligaments, to be afterwards mentioned.

At birth, the greater part of the Bone is in a Cartilaginous ſtate, and the Appendices continue ſo for many years after the other parts are completely oſſified.

# THE TRUNK.

The Trunk, *composed* of the *Spine*, *Pelvis*, and *Thorax.*

The *Spine*, reaching from the Condyles of the Occipital Bone, to the lower end of the Os Coccygis.

The Spine appearing *straight*, when viewed anteriorly or posteriorly.

The several *Curvatures* of the Spine, when viewed in a lateral direction.

The Spine, *composed* of a long upper, and a short under Pyramid, joined together by their Bases.

The upper Pyramid, composed of *true Vertebræ*, or bones which turn upon each other.

The under Pyramid, formed of *false Vertebræ*, or Bones which, at an early period of life, resemble the true Vertebræ, but afterwards grow together, so as not to contribute to the motions of the Trunk of the Body.

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## *THE TRUE VERTEBRÆ,*

Are Twenty-four in Number.

Each of the true Vertebræ composed of a *Body* and *Processes.*

The *Body* of a true Vertebra of a *spongy* nature, with *upper* and *under Surfaces* placed horizontally.

The anterior *convexity* of the Body, and posterior *concavity.*

Numerous *small Holes* on the anterior and lateral parts of the Body, for the passage of Blood-vessels into the Substance of the Bone, or for the attachment of Ligamentous Fibres.

A *Ring of Bone*, at the upper and under edges of the Body, of a firmer texture than the rest of its Substance, and thereby adding to the general strength of the Bone.

The Ring of Bone forming a *superficial Cavity*, which receives the Intervertebral Cartilage.

The

The *Intervertebral Cartilages*, or *Cartilago-ligamentous Subſtances*, placed between the Bodies of the Vertebræ, for fixing them together, and allowing the Spine to be moved in all directions.

The Intervertebral Subſtances are *compoſed* of *Concentric Lamellæ*, with their edges fixed to the bodies of the Vertebræ.

The Lamellæ of theſe Subſtances are formed of *Oblique Fibres*, which decuſſate each other, and are very compreſſible.

The *Centre* of theſe Subſtances changes from *Lamellæ*, and puts on the appearance of a *Mucus* or *Pulp*, which has little compreſſibility, and ſerves as a *pivot* upon which the other parts move.

The *Intervertebral Subſtances*, like the Vertebræ themſelves, *larger* and *thicker* as they deſcend, to give greater ſecurity to the parts they ſupport,

An *Arch* ſent out from the back-part of the Body, which, together with the Body, forms a *large Hole* for the paſſage of the Spinal Marrow.

A *Notch* at the upper and under edge of each ſide of the Arch, for the paſſage of the Spinal Nerves.

The *two Superior Oblique*, or *Articulating Proceſſes*, covered with Cartilage, placed upon the upper part of the ſides of the Arch.

The *two Inferior Oblique*, or *Articulating Proceſſes*, alſo covered with Cartilage, and placed upon the under part of the ſides of the Arch.

The *two Superior Oblique Proceſſes* of one Vertebra, articulated with the *two Inferior Oblique* of the Vertebra immediately above it.

The *two Tranſverſe Proceſſes* projecting from the ſides of the Arch, and between the Oblique Proceſſes.

The *Spinous Proceſs*, ſent out from the back-part of the Arch, which being ſharp and pointed, gives name to the whole chain of Bones.

The *Edges* of the Proceſſes, as well as of the Body, are *rough*, where Ligaments come off which fix them to each other.

The Vertebræ *divided* into *ſeven Cervical*, *twelve Dorſal*, and *five Lumbar*.

The *Cervical Vertebræ*, or *Vertebræ of the Neck*, having their Bodies *ſmaller*, *more flattened*, *before* and *behind*, and *more hollowed above* and *below*, than thoſe of the other Vertebræ.

 The

The *Articulating Proceſſes, more Oblique* than any others.

The *Tranſverſe Proceſſes, perforated* for the paſſage of the Vertebral Blood-veſſels, and *hollowed* above for the tranſmiſſion of the Spinal Nerves.

The *Spinal Proceſſes*, ſtraight out from the bodies of the Vertebræ, *ſhorter* than any other, and *forked* for the attachment of Muſcles.

The Cervical Vertebræ admit of *free motion*, in conſequence of the thickneſs of their Cartilages, and the nature of their Proceſſes.

The firſt Vertebra, called *Atlas*, from its ſupporting the Globe of the Head, having only a ſmall Arch inſtead of a Body.

The Upper and Under Surfaces of the Arch, *marked* by the Ligaments which fix it to the Head and ſecond Vertebra.

The back-part of the Arch, *hollow*, and *covered by a ſmooth Cartilage*, where it turns upon the Proceſſus Dentatus.

The Inner Parts of the ſides of the Vertebra, between the Superior and Inferior Oblique Proceſſes, *marked* by the Lateral Ligaments which go to the Proceſſus Dentatus, and by the Tranſverſe Ligament which paſſes behind that Proceſs.

An *Arch* upon the back-part of the Atlas, inſtead of a Spinous Proceſs, *marked* by Muſcles and Ligaments.

The *Superior Oblique Proceſſes, oval* and *hollow*, for receiving the Condyles of the Occipital Bone.

A *Foſſa* under the outer and back part of each Oblique Proceſs, for the circular paſſage of the Vertebral Arteries into the Head, and Tenth Pair of Nerves out of it.

The *Tranſverſe Proceſſes, longer* than in any other Cervical Vertebra, for the origin of ſeveral Muſcles.

Upon the Atlas the head has its *flexion* and *extenſion*, but little other motion.

The ſecond Vertebra, called *Dentata*, from the Tooth-like Proceſs on the upper part of its Body.

The *Body* of this Vertebra, *larger* than the reſt, and of a Conical figure.

The fore-part of the Proceſſus Dentatus, *covered with Cartilage* where it turns upon the Atlas.

The *Sides* of this Proceſs, *marked* by the inſertion of the Lateral Ligaments, and its *Point* by the inſertion of the perpendicular Ligament which is fixed to the Edge of the Foramen Magnum of the Occipital Bone.

The

The *Superior Oblique Proceſſes* placed horizontally, and elevated in the middle, to be received into the hollow Inferior Oblique Proceſſes of the Atlas, where the Head has its principal rotary motion.

The *Spinous Proceſs*, thick and ſtrong, to give origin to the Muſcles which aſſiſt in the extenſion and rotation of the Head, and turned down to allow theſe motions to be readily performed.

The *ſeventh Cervical Vertebra*, approaching to the form of the Dorſal Vertebræ. The Spinal and Tranſverſe Proceſſes have no bifurcation.

The *Dorſal Vertebræ*, or *Vertebræ of the Back*, having their bodies larger, ſharper before, flatter at the ſides, and more hollow behind, than thoſe of the Cervical Vertebræ.

A *Pit*, lined with Cartilage at each ſide of their upper and under Edges, near the Tranſverſe Proceſſes, for the articulation of the Heads of the Ribs.

The *Intervertebral Cartilages*, *thin*, to admit of little motion only, and *thinneſt* anteriorly, to enlarge the Curvature of the Spine, and increaſe the cavity of the Thorax.

The *Oblique Proceſſes*, having nearly a perpendicular direction, the upper ones ſlanting forwards, and the under ones backwards.

The *Tranſverſe Proceſſes*, long, turned obliquely backwards, enlarged at their outer extremity, where they are faced with Cartilage, to be articulated with the Tubercles of the Ribs.

The *Spinous Proceſſes*, long, thick at the roots, but ſlender near the extremities, and pointing obliquely downwards over each other, by which the Spinal Marrow in this part is well protected.

The upper Edge of each of the Spinous Proceſſes of theſe Vertebræ, formed into a *Ridge*, which, in certain motions of the Spine, is received by a Groove in the Vertebra immediately above it.

The laſt peculiarity of Structure, with the others already mentioned, prevent the Dorſal Vertebræ from having much motion.

The *firſt Dorſal Vertebra* has the whole Pit for the Head of the firſt Rib formed in it.

The *twelfth Dorſal Vertebra* receives the whole Head of the laſt Rib, and has no Cartilaginous Surface on its Tranſverſe Proceſs.

The

The *Lumbar Vertebræ*, or thofe of the Loins, having their bodies larger and broader than thofe of the other two claffes.

The *Intervertebral Cartilages*, the thickeft of any, and moft fo at their fore-part, by which the Spine is rendered convex there, for the fupport of the Abdominal Bowels.

The *Oblique Proceffes*, remarkably deep, and placed upright, the Superior Oblique Procefs of one Vertebra facing inwards, and receiving the Inferior Oblique Procefs of the Vertebra below it, which is turned in the oppofite direction.

The *Tranfverfe Proceffes*, long, flender, and almoft erect, to give origin to large Mufcles, and admit of free motion.

The *Spinous Proceffes*, fhort, large, and ftrong, and placed horizontally, with narrow Edges above and below, and broad flat Sides, giving origin to Mufcles of great ftrength.

The *Spinal Canal*, larger than in the Back, for the paffage of the Cords of the Spinal Marrow which form the Cauda Equina.

In confequence of the thicknefs of the intervertebral Cartilages, and the fituation of the Proceffes of the Lumbar Vertebræ, the motion of this part of the Spine is extenfive, though not fo much fo as in the Neck.

## *THE FALSE VERTEBRÆ.*

THE FALSE VERTEBRÆ, *compofed* of the Os Sacrum and Os Coccygis.

### THE OS SACRUM,

Suppofed to be named rather from its fize than from its having been offered in facrifice.

The *triangular form* of the Bone, with its pointed under extremity.

The *flat concave anterior Surface*, for enlarging the cavity of the Pelvis.

The *under* and *fore-part*, forming a *turn*, called by fome *Leffer Angle* of this Bone.

The *convex irregular Surface behind*, where ftrong Mufcles arife.

*Four*

*Four tranſverſe prominent Lines* ſeen anteriorly, pointing out the ſituation of the Cartilages which originally divided the Bone into five pieces.

The *Spinal Canal*, of a triangular form, becoming gradually ſmaller in its deſcent; correſponding with the Cauda Equina which goes through it.

The *Arch* at the ſides and back-part of the Spinal Canal, much thicker and ſtronger than in the True Vertebræ.

Only *two Oblique Proceſſes* belonging to this Bone, and theſe facing backwards, to correſpond with the two inferior of the laſt Lumbar Vertebra.

A *large oblong Proceſs* on each ſide of the Bone, formed by all the original tranſverſe Proceſſes grown together.

The upper lateral parts of the Bone, which correſpond with the three ſuperior tranſverſe Proceſſes, divided into *two irregular Cavities* on each ſide, by a *perpendicular Ridge.* The anterior of the two Cavities is lined with *Cartilage*, which glues this Bone to the Os Ilium, and does not allow any motion. The poſterior Cavity is *rough* and *irregular*, and in the recent Subject is full of *Ligamentous Fibres* and *Cellular Subſtance*, which are included in the general Capſular Ligament, and alſo aſſiſt in fixing the two Bones to each other.

The *Spinous Proceſſes:* the three uppermoſt commonly diſtinct, but remarkably *ſhort:* There is a great variety, however, in the appearances of the Spinous Proceſſes in different Bones.

*Four Pairs of large Holes* on the *anterior Surface* of the Bone, at the end of the Lines already deſcribed, and *Grooves* running out from the Holes, for the paſſage of the Sacral Nerves.

*Four Pairs of Holes* on the *poſterior Surface*, not much ſmaller than thoſe ſeen anteriorly; but ſo filled with Cellular Subſtance, and covered with Membranes in the Recent Body, as to admit ſmall Nerves only to paſs out to the Muſcles on the back-part of the Pelvis.

A *Notch* at the under end of each ſide of the Bone, or a *Hole* common to it and the Os Coccygis, for the paſſage of the laſt Spinal Nerve.

The *Subſtance* of the Os Sacrum, like that of the other Vertebræ, is very *ſpongy*, and is covered only by a thin external Plate, which, however, is rendered conſiderably ſtronger by a Ligamentous Membrane which adheres to it.

The *Connection* of this Bone above to the laſt Lumbar Vertebra,

Vertebra, in the way the other Vertebræ are connected to each other, and the ſame motions allowed as to theſe Vertebræ. The projection formed between theſe two Bones anteriorly, obtains the name of *Promontory* or *Greater Angles* of the Os Sacrum.

In the Fœtus, the Os Sacrum is compoſed of five diſtinct Vertebræ, which have Intervertebral Cartilages ſimilar to thoſe of the True Vertebræ.

At this time, each of the Vertebræ of the Os Sacrum, as well as of the True Vertebræ, conſiſts of a Body and two lateral parts, which are joined together by Cartilages.

## The Os Coccygis.

The Os Coccygis, or *Rump-Bone*, compared in *ſhape* to the Beak of a Cuckoo.

The *Situation* of this Bone at the end of the Os Sacrum.

The Bone, *broad* and *flat above*, and *tapering* below.

The Bone, *convex behind*, and forming a *curve forwards*, which ſupports the end of the Rectum.

The *four pieces* of which it is compoſed in Young Subjects.

This Bone is conſidered by ſome authors as being formed of *three* pieces; and then the Os Sacrum is ſaid to have ſix.

The *firſt* or *uppermoſt piece* the *largeſt*, with Shoulders reaching farther than the end of the Os Sacrum, which is conſidered by ſome as a proper diſtinction between the Os Coccygis and Os Sacrum.

From the back-part of the Shoulders, *two Cornua* frequently aſcend to join the forked Spinous Proceſs at the end of the Os Sacrum, for the paſſage of the laſt pair of Spinal Nerves, which goes through a hole common to this Bone and the Os Sacrum on each ſide.

The *three lower Bones* of the Os Coccygis becoming gradually ſmaller, the *fourth* terminating in a *rough point*.

A *Cartilage* is interpoſed between the different pieces of this Bone in Young Subjects, joining them together, as in the caſe of the Vertebræ, allowing motion upon each other forwards and backwards, but chiefly between the firſt and ſecond pieces, and a greater degree of motion there in the Female than in the Male.

In advanced life, but earlier in Men than in Women, the pieces grow together ſo as to admit of no motion; but

but this circumſtance is much longer of happening between the firſt and ſecond, than between the other pieces.

The *Subſtance*, like that of the Os Sacrum, is *ſpongy*, but it differs from it, in having no paſſage for Spinal Marrow, nor Holes for Spinal Nerves.

The *Connection* of this Bone, in Young Subjects, to the Os Sacrum, by *Cartilage*.—In Old People by an *union* of Subſtance.

The Surface of the Bone is covered by a ſtrong Ligament, which adds to its ſtrength: Its ſides give riſe to numerous Muſcular Fibres, which, while they originate from it, ſerve to protect it.

In the Fœtus, the Os Coccygis is almoſt entirely compoſed of Cartilage.

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## *THE PELVIS.*

The Pelvis, or *Bones compared to a Baſon*, ſituated at the lower part of the Trunk, and formed by the Os Sacrum, Os Coccygis, and two Oſſa Innominata.

### OS INNOMINATUM.

The *Situation* of the Os Innominatum, or *nameleſs Bone*, in the fore-part and ſide of the Pelvis, and under and lateral parts of the Abdomen.

The *Diviſion* of the Bone, in Children, into *Os Ilium*, *Os Iſchium*, and *Os Pubis*.

In the Adult, the three Bones are *oſſified together*, but retain their original names.

### The Os Ilium.

The *Os Ilium*, or *Haunch-Bone*, forming the upper part of the Os Innominatum, and ſpreading out to aſſiſt in ſupporting the contents of the Abdomen.

The *Dorſum*, or *outer convex Surface* of the Bone, raiſed in ſome parts and depreſſed in others, where the Glutei Muſcles have their origin.

The *Spine*, or upper ſemicircular edge of the Bone, for the attachment of the oblique and tranſverſe Abdominal Muſcles.

The *anterior ſuperior Spinous Proceſs*, or anterior extremity

mity of the Spine, for the attachment of the Sartorius Muſcle and Poupart's Ligament.

The *anterior inferior Spinous Proceſs*, a little below the former, for the attachment of the Rectus Femoris Muſcle.

The *two poſterior Spinous Proceſſes* at the back-part of the Spine, leſs conſiderable than the two anterior; partly for the origin of Muſcles, but chiefly for the attachment of Ligaments which belong to the Joint between this Bone and the Os Sacrum.

The *Niche* of the Os Ilium under the poſterior inferior Spinous Proceſs, for the paſſage of the Pyriform Muſcle, the Sciatic Nerve, and Blood-veſſels.

The *Venter*, or *inner concave Surface* of the Bone, for the attachment of the internal Iliac Muſcle, and the ſupport of a portion of the Inteſtinum Ilium and Colon.

A *Paſſage* in the Venter for the Medullary Veſſels of the Bone.

A *Depreſſion* at the inſide of the anterior inferior Spinous Proceſs, where the Flexor Muſcles of the Thigh, and the anterior Crural Veſſels and Nerves paſs.

The *Linea Innominata* at the under part of the Venter of the Bone, forming the lateral part of the Brim of the Pelvis, and the line of diviſion between the Pelvis and Abdomen.

The *inner* and *back-part* of the Bone is very irregular, for the origin of ſome of the large Muſcles of the Back, for the attachment of Ligaments which go to the Os Sacrum, and for the firm connection which ſubſiſts between this Bone and the Os Sacrum.

The *under*, *fore*, and *outer part* of the Bone, forming the upper and back-part of the Acetabulum.

### The Os Ischium, or *Hip-Bone*.

The *Situation* of the Os Iſchium in the loweſt part of the Pelvis; its *figure irregular*, its ſize next to that of the Os Ilium.

The *upper thick part* of the Bone, forming the under part of the Acetabulum.

The *Spinous Proceſs* ſent back from the upper part of the Bone, for the attachment of Muſcles and the ſuperior Sacro-Sciatic Ligament.

The *Cervix* placed under the Spinous Proceſs, and covered with Cartilage where the tendon of the Obturator Internus Muſcle plays.

The *Tuberosity*, or *Tuber Ischii*, forming the part on which the Body rests in sitting, and giving attachment to the inferior Sacro-Sciatic Ligament, and the greater part of the Flexor Muscles of the Leg.

The *Crus* which goes obliquely upwards and forwards, and gives attachment to the Crus Penis and its Erector, and to part of the Adductor Muscles of the Thigh.

### The Os Pubis, or *Share-Bone*.

The *Situation* of this Bone at the upper and fore-part of the Pelvis.

Its *size*, the least of the three parts of the Os Innominatum.

The *thick* and *strongest* part of the Bone, forming the upper and fore-part of the Acetabulum.

The *smaller* and *hollow* part of the Bone rendered smooth by the passage of the Flexor Muscles of the Thigh, with the anterior Crural Vessels and Nerves.

The rough *Crest*, or *Angle* of the upper and fore-part of the Os Pubis, where the Rectus and Pyramidalis Muscles, and the inner end of Poupart's ligament, are attached.

A *Ridge* extended from the Crest along the upper inner edge of the Bone, to form, with a similar Ridge of the Os Ilium, the Brim of the Pelvis.

Another *Ridge* below the former, extended downwards and outwards towards the Acetabulum.

A *Cavity* below these Ridges, for the origin of the Pectineus Muscle.

A *Nitch* at the upper and inner part of the great Foramen, formed into a Hole in the Subject, for the passage of the Obturator Vessels and Nerves.

The *inner* end of the Bone, *rough* and *unequal*, but covered with a Ligamentous Cartilage, which, in fresh Bones, joins the two Ossa Pubis so firmly together, as to prevent them from moving upon each other.

The *Crus* of the Bone which goes downwards to join the Crus of the Os Ischium, and form, along with that Crus, the Arch of the Pubis.

The *Foramen Thyroideum*, or Shield-like Hole, formed by the Os Pubis and Os Ischium, and in the Subject, filled by a Membranous Ligament, excepting at the Nitch above mentioned, which gives origin to a large share of the Obturator Muscles.

The *Acetabulum*, or *Cavity*, (compared to a Vinegar-

meaſure uſed by the Ancients), placed farther out than the Foramen Thyroideum, and formed by the three pieces which compoſe the Os Innominatum, in ſuch a manner, that the Os Ilium forms near two fifths, the Os Iſchium more than two fifths, and the Os Pubis one fifth.

The *Brim* of the Acetabulum is very deep, eſpecially behind, and made ſtill deeper in the Subject, by being tipped with a Cartilaginous Ligament.

Round the *Baſe* of the Brim, the Bone *rough*, where the Capſular Ligament of the joint is fixed.

A *Breach* in the inner and fore-part of the Acetabulum, which, in the Subject, has a ſtrong Ligament ſtretched from one end to the other, but leaving a Hole behind for containing part of the Subſtance called *Gland of the Joint.*

The *Cavity* of the Acetabulum lined with Cartilage, excepting at its under, inner, and fore-part, where there is a rough Surface for containing the Fatty Subſtance within the Joint.

The *Brim* of the Pelvis, or its *Upper Opening.*

The *Inferior Opening* is large in the Skeleton, but, in the Subject, filled up, in a great meaſure, by Ligaments and Muſcles which ſupport and protect the contained parts, and leave only the paſſages from the Bladder of Urine and Rectum in the Male, and, together with theſe, the paſſage from the Uterus in the Female.

The Oſſa Innominata, *joined behind* to the Os Sacrum by a *thin Cartilage* and by *ſtrong Ligaments*, ſo as to have no motion; the Joint obtaining the name of *Poſterior Symphyſis.*

*Before*, theſe Bones connected to each other by a Ligamentous Cartilage and Ligaments, which alſo prevent motion here, and has the name of *Symphyſis*, or *Anterior Symphyſis of the Pubis.*

In the Fœtus, the Spine of the Os Ilium, and that part of the Bone which belongs to the Acetabulum, are Cartilaginous.—The Spinous Proceſs, the Tuberoſity, and Crus of the Os Iſchium;—the Crus of the Os Pubis, and that portion of it which forms the Acetabulum, are alſo, at this period, in a Cartilaginous ſtate.

THE

## *THE THORAX, OR CHEST.*

The *Thorax*, formed of the Sternum before, of the Ribs on each ſide, and of the Dorſal Vertebræ behind.

The general *Figure* of the Thorax approaching that of a *Cone*, but left open above for the paſſages to the Lungs and Stomach, and for the great Blood-veſſels.

The *Lower Part* of the Thorax *ſlanting*, the *fore-part* being conſiderably ſhorter than it is behind.

The *Under Margin* on each ſide, forming a curved Line, the convex ſide of which is turned downwards.

The under end of the Thorax, in the Subject filled by the *Diaphragm*, which forms a Partition between it and the Abdomen.

### The Ribs, or Costæ,

Conſidered as guards to the Heart and Lungs.

The whole of the Ribs *ſlanting* downwards with reſpect to the Spine.

Their *Number*, commonly *twelve* on each ſide, though ſometimes thirteen, and at other times only eleven, have been found.—In ſuch caſes the Vertebræ are one more or leſs than the common number.

The Ribs *convex* externally, by which their ſtrength is increaſed.

The Ribs *concave* and *ſmooth* internally, with their flat ſides turned towards the Lungs to protect them.

The *Head* of each Rib formed into a *Ridge* and *two hollow Surfaces* covered with Cartilage, to be articulated with the bodies of two Vertebræ and their intermediate Cartilage.

Round the Head, the Bone is *ſpongy*, for the attachment of the Capſular Ligament of the Joint.

The *Tubercle* of the Rib, at a little diſtance from its Head, with a flat Surface and irregular Edge, to be articulated to the tranſverſe Proceſs of the undermoſt of the two Vertebræ, to which the Head of the Rib is joined.

The *Cervix* of the Rib, between its Head and Tubercle, of a rounder form than the Bone, is farther out.

Another *ſmall Tubercle* ſeen in moſt of the Ribs, at the outer ſide of the former one, for the attachment of Liga-

ments which fix the Ribs to each other and to the tranſverſe Proceſſes, and for the inſertion of the outer Slips of the Longiſſimus Dorſi Muſcle.

Beyond the Tubercles, the Rib rendered *flat* by the Sacro-Lumbalis Muſcle.

The *Angle* of the Ribs to which the Sacro-Lumbalis Muſcle is fixed, where the Bones are about to bend, to form the lateral part of the Thorax.

The Rib *flat* where it forms the lateral part of the Thorax, and the flat Surface oppoſed to the Lungs.

The *Upper Edge* of the Rib, *round* where the intercoſtal Muſcles are fixed.

The *Under Edge*, *ſharp* where the external intercoſtal Muſcles are fixed.

A *Foſſa* at the inſide of the under Edge, for lodging the intercoſtal Veſſels and Nerve.

The *Foſſa awanting* towards the extremities of the Ribs; for behind, the Veſſels have not reached them; and before, they are too ſmall to impreſs them.

An *Oval Pit* in the anterior extremity of the Rib, for receiving the Cartilage which runs from it to the Sternum.

The *Cartilage* of the Ribs, placed between the Rib and Sternum.

The Cartilages, like the Ribs, *flat* on their outer and inner Surfaces, and *ſmooth* where they are oppoſed to the Lungs.

The Cartilage of each Rib, forming, with the Rib itſelf, a *Curve* with the concave part upwards.

And with the Sternum, an *obtuſe Angle* above, and an *acute one* below.

The Ribs *articulate behind* to the Vertebræ, by a double articulation, and *before* to the Sternum by the Cartilages, or by the Cartilages to each other, in ſuch a manner as to allow motion upwards and downwards, though only a ſmall degree in any ſingle Rib, and that towards its middle; but no motion in any other direction.

## Peculiarities of the Ribs.

The *firſt Rib* the *moſt crooked*:—From this downwards they become gradually ſtraighter.

The *uppermoſt Ribs* approaching nearer to the horizontal ſituation. As they deſcend, their obliquity, with reſpect to the Spine, increaſes, and their anterior extremities become more diſtant from each other.

The

The *Cartilages* of the Ribs, like the Ribs themſelves, becoming gradually longer, but, contrary to what happens in the Ribs, they approach nearer to each other in their deſcent.

The *length* of the Rib, *increaſing* from the firſt to the ſeventh, and then *decreaſing* to the twelfth Rib.

The *diſtance* between the heads of the Ribs and their Angles, increaſing to the ninth Rib, correſponding with the breadth of the Sacro-Lumbalis Muſcle which covers it.

The *diviſion* of the Ribs into *True* and *Falſe*.

The *True Ribs*,—the ſeven uppermoſt,—having their Cartilages joined to the Sternum, and oppoſed to the Heart and Lungs, from which they are termed the *True Cuſtodes*, or *Guards of Life*.

The *Falſe*, or *Baſtard Ribs* ;—the five inferior, which do not reach the Sternum.

The *Cartilages* of the Falſe Ribs, *ſhorter* as they deſcend.

The *poſterior Extremity* of the firſt Rib, *articulated only with the firſt Vertebra*.

A *flat Surface* upon the upper part of the firſt Rib, where the *Subclavian Veſſels* paſs over it to the arm.

There is no *Foſſa* at the edge of this Rib for the Intercoſtal Veſſels.

The *Cartilages* of the two under True Ribs, and three upper Falſe Ribs, *joined* to each other by an union of Subſtance.

The *Head* of the eleventh Rib *has no Tubercle* for articulation behind, being only looſely joined to the tranſverſe Proceſs.

The twelfth Rib, *much ſhorter* than the reſt ;—its Head is only joined to the twelfth Vertebra of the Back, and it has no Tubercle, nor articulation with the tranſverſe Proceſs : Neither has it any Foſſa at its under edge, becauſe the Veſſels run below it.

The *anterior Extremities* of the eleventh and twelfth Ribs, not joined to each other, nor to any other Rib, but lying looſe among the Muſcles ;—hence ſometimes named *Floating Ribs*.

## The Sternum, or Breast-Bone.

The *Situation* of the Sternum in the fore-part of the Thorax.

*Three pieces* compofing the Sternum, in a perfon of middle age, and thefe joined together by Cartilage.

The different pieces of this Bone are frequently found *offified together* in old people.

The Sternum *thick* and *broad above*, and *thin* and *narrow below*.

The *outer Surface flat*.

The *inner Surface is flightly hollowed*, to enlarge the Cavity of the Thorax.

*Pits* upon the edges of the Sternum, to receive the Cartilaginous ends of the feven True Ribs.

The *Pits* at a confiderable diftance from each other above, but becoming gradually nearer as they defcend.

The *Cancellæ* of the Sternum, covered only by a thin external plate; but this rendered ftronger by a Tendinous Membrane which covers it in the recent ftate.

The *upper piece* of the Sternum, of a fomewhat *triangular* figure, compared to that of a heart as painted on playing-cards, only appearing to be cut acrofs below.

The *upper* and *back-part hollowed*, to make way for the Trachea.

The *upper Corners* thicker and ftronger than the reft of the Bone, with a *Cavity* in each, for receiving the ends of the Collar-Bones.

Under thefe Cavities, the Bone becoming *thinner*, and having a Pit upon each fide, for receiving the Cartilage of the firft Rib.

Part of a *Pit* in the *under Corner* of the firft piece, for the Cartilage of the fecond Rib.

The *fecond piece* of the Sternum, of an oblong form, but a little broader below than above, and confiderably longer than the former.

*Complete Pits* upon the edge of this piece, for the Cartilages of the third, fourth, fifth, and fixth Ribs, and part of the Pits for thofe of the fecond and feventh.

*Lines* extending between the Pits, pointing out the original marks of divifion of this piece.

The *Connection* of the fecond piece of the Sternum to the firft by Cartilage, which, in the earlier period of life, allows fome yielding, but this becomes gradually lefs as the perfon advances in life.

The *third piece* of the Sternum, *cartilaginous* in a Young Subject, and pointed like a broad-fword, hence termed *Cartilago Enfiformis*.

In

In the Adult, it is commonly *offified* in the middle, and *cartilaginous* at the edges.

The *Size* of this piece *much lefs* than that of the other two.

Only *one half* of the Pit, for the Cartilage of the feventh Rib, formed in the fide of this piece.

The *Variations* of the Cartilago-Enfiformis are confiderable in different Subjects; for, inftead of the common form, it is fometimes narrow like the point of a fmallfword, or turned obliquely to one fide, or forwards, or backwards; or forked at the point, or perforated in the middle.

Thefe Variations may happen without any inconvenience; but where it projects much in any direction different from the common one, it is attended with bad confequences.

The Sternum *joined* by Cartilage to the feven upper or True Ribs, and by an interarticular Cartilage to the anterior ends of the Clavicles.

In the Fœtus, the Bone is compofed of feven or eight pieces, but the number of thefe varies in different Subjects

THE

# THE SUPERIOR EXTREMITIES.

THE Superior Extremities are compofed of the Bones of the Shoulders, Arms, and Hands.

The Shoulder confifts of the Clavicle and Scapula.

## THE CLAVICLE, or *Collar-Bone.*

The *Situation* of the Clavicle, between the upper part of the Sternum and top of the Scapula, where it acts as a beam fupporting the Shoulder, and bearing it off the Trunk of the Body.

The Sternal, or internal Extremity, *triangular* and *larger* than the Body, with one of the angles elongated, where it gives origin to a Ligament extended between the two Clavicles.

The Surface next the Sternum *irregularly hollowed*, to correfpond with the interarticular Cartilage, which, with the Capfular Ligament of this Joint, allows a fmall degree of motion in all directions.

The body of the Bone next the Sternum *bent forwards*, and that next the Shoulder *turned back*, in form of an Italic *ſ*, or like a key ufed by the Ancients; from which, or the fupport it gives the Shoulder, its name is derived.

The upper part of the Clavicle next the Sternum, *rounded*, and that next the Scapula *flat*, where it lies over the Joint of the Humerus.—Over the Bone in general, rough marks are obferved for the attachment of Mufcles and Ligaments.

The under Surface *hollow*, for lodging a portion of the Subclavian Mufcle.

The *External* or *Scapulary Extremity* tipped with Cartilage, to be articulated with the Acromion of the Scapula.

## THE SCAPULA, or *Shoulder-Blade.*

The *Situation* of the Scapula, upon the upper and back-part of the Thorax, at fome diftance from the Ribs, the interval being filled up by a cufhion of Flefh.

The *fhape* of the Scapula *triangular*, and one of the angles placed downwards.

The *Venter*, or inner Surface, or that next the Ribs, *concave*, and marked with *Ridges* and *Depreffions* by the Subfcapularis Mufcle.

The

The *Dorſum*, or outer Surface of the Scapula, rendered *convex* in ſome parts, and *concave* in others, by the action of the Muſcles which cover it.

The body of the Scapula is *remarkably thin*, and, in an Old Perſon, *tranſparent*.

The *edges* of the Bone are *thick* and *ſtrong*, and are termed *Coſtæ*.

The ſuperior Coſta the *ſhorteſt* of the three, and placed nearly oppoſite to the ſecond Rib.

A *ſemilunar Notch* near the fore-part of the ſuperior Coſta, for the paſſage of the ſuperior Scapulary Veſſels and Nerves.

The *inferior* or *anterior Coſta*, extending obliquely downwards and backwards, between the third and eighth Ribs.

The *poſterior Coſta*, or *Baſe* of the Bone, placed obliquely with reſpect to the Spine, the upper end being conſiderably nearer to it than the under.

The *upper part of the Baſe*, above the Spine, running obliquely forwards to the upper angle, and giving attachment to the Levator Scapulæ Muſcle.

The *inferior Angle* very acute, and marked by the paſſage of the Latiſſimus Dorſi, and the origin of the Teres Major.

The *ſuperior Angle* approaching a right one.

The *anterior Angle*, forming the Cervix which ſupports the head of the Bone.

The *Glenoid Cavity*, placed on the fore-part of the head of the Bone, and lined with Cartilage for the articulation of the Os Humeri.

The *ſhape* of that Cavity, reſembling that of an Egg cut longitudinally, with the large end undermoſt, but ſo ſhallow as to receive only a ſmall portion of the Ball of the Os Humeri, the reſt of the Ball being contained in the Capſular Ligament.

The *Spine*, running acroſs the Bone, and dividing it into a ſmall upper, and large under Surface.

The Spine, *ſmall* at its beginning, and becoming *higher* and *broader* in its courſe forwards.

A *triangular ſpace*, between the root of the Spine and Baſe of the Bone, where part of the Trapezius Muſcle is fixed.

The *Foſſa Supra-Spinata*, or ſpace above the Spine, for the origin of the Supra-Spinatus Muſcle.

The

The *Fossa Infra-Spinata*, for the origin of the Infra-Spinatus Muscle.

The Spine becoming broad and flat at its anterior extremity, where it is termed *Acromion*, or Top of the Shoulder.

The under Surface of the Acromion *hollow* for the passage of the Spinati Muscles.

The *Situation* of the Acromion over the Joint of the Humerus, which it assists in protecting.

The anterior Edge of the Acromion *tipped with Cartilage* for its articulation with the outer end of the Clavicle, where very little motion is allowed.

The *Coracoid*, or *Crow's-beak-like Process*, arising from the neck of the Bone, and making a curvature forwards, so as to leave a hollow at its root for the passage of the Subscapularis Muscle.

The *Point of this Process* gives origin to Muscles, and from its side a strong Ligament goes across to be fixed to the Acromion for the protection of the Joint.

The Scapula is articulated with the Trunk of the Body, by means of the Clavicle, which allows it to play in all directions.

### The Os Humeri, or *Arm-Bone*.

The *Situation* of the Os Humeri at the side of the Thorax, and under the Scapula.

The *Ball*, or *Head* of the Os Humeri, forming a small Segment of a large Sphere, and this covered with Cartilage, and placed at the upper, posterior, and inner part of the body of the Bone, to correspond with the Glenoid Cavity of the Scapula.

The *Cervix*, or *Neck* surrounding the edge of the Ball, and forming a superficial Fossa where the Capsular Ligament is fixed, which allows the Bone an extensive motion in all directions.

*Numerous Holes* round the upper end of the Bone, for the insertion of the Fibres of the Capsular Ligament, and for the passage of Blood-vessels into the Bone.

A *Groove*, or long *Fossa*, in the upper and fore-part of the Bone, for lodging the Tendon of the long head of the Biceps Muscle.

The *smaller Tubercle*, placed at the upper and inner side of the above-mentioned Groove, for the attachment of the Subscapularis Muscle.

The *larger Tubercle*, opposite to the former, and on the outer

outer ſide of the Groove, for the attachment of the Muſcles which cover the Dorſum of the Scapula.

A *Ridge* continued down from each Tubercle along the ſides of the long Foſſa, for the inſertion of Muſcles coming from the Trunk of the Body, or from the Scapula.

A *Paſſage* ſlanting downwards in the fore and inner part of the Bone, near its middle, for the Medullary Veſſels.

At the *under End* of the *Groove* for lodging the long head of the Biceps Muſcle, the Bone marked by the attachment of the Deltoid and other Muſcles.

The Body of the Bone round near its upper end; but, as it deſcends, it appears twiſted, then flat, and increaſes in breadth at the lower extremity.

From the Muſcular Prints on the fore-part of the body of the Bone, a *blunt Ridge* continued to the upper part of the Trochlea.

The under and back-part of the Bone, *flat* and *ſmooth*, by the motion of the Triceps Extenſor of the Fore-Arm.

A *large Ridge* at the under and outer, and a *ſmall Ridge* at the under and inner edge of the Bone, for the attachment of ſtrong Tendinous Faſciæ, which give origin to part of the Muſcles of the Fore-Arm.

The Ridges end in the two Condyles.

The *external Condyle* placed at the under and outer part of the Bone, for the origin of the Extenſor Muſcles of the Hand and Fingers.

The *Internal Condyle*, at the under and inner part of the Bone, more prominent than the former, for the origin of the ſtrong Flexor Muſcles of the Hand and Fingers.

The *articulating Surface* at the under end of the Bone, covered with Cartilage for the articulation with the Bones of the Fore-Arm.

The *inner Part* of the articulating Surface, conſiſting of a large internal, and ſmall external eminence, with a middle Cavity, or a Trochlea upon which the Ulna moves.

The *oblique Situation* of the articulating Surface, the inner end being lower than the outer, by which the hand turns more readily to the upper parts of the Body.

The *outer Part* of the Articular Surface upon which the head of the Radius moves, of a round form, and conſidered by ſome authors as the ſmooth part of the outer Condyle.

Round the edge of the Articular Cavity, the Bone

marked

marked by the inſertion of the Capſular Ligament of the Joint.

A *Cavity* at the under and fore-part of the Bone, above the Trochlea, for receiving the Coronoid Proceſs of the Ulna in the Flexion of the Fore-Arm.

A *Cavity* at the back-part of the Bone, above the Trochlea, the under part of it for receiving the Olecranon of the Ulna in the extenſion of the Fore-Arm, and the upper part for containing the Fat of the Joint.

Between theſe Cavities, the Bone is preſſed ſo thin as to become tranſparent, eſpecially in an Old Perſon.

## THE FORE-ARM.

It conſiſts of two Bones, the *Ulna* and *Radius*.

### The Ulna, or *Cubit*.

The *Situation* of the Ulna at the inner part of the Fore-arm, the Arm being ſuppoſed to hang by the ſide of the Body, with the Palm of the Hand turned forwards.

The *Olecranon*, *Proceſſus Anconeus*, or *top of the Cubit*, placed at the upper end of the Bone.

The upper end of this Proceſs, *rough* where the Triceps Extenſor Cubiti Muſcle is fixed.

The *Coronoid*, or *ſharp Proceſs*, at the upper and fore-part of the Bone, but conſiderably lower than the Olecranon, for forming a part of the hinge of the Joint of the Elbow.

The *great Sigmoid*, or *Semilunar Cavity*, between the Olecranon and Coronoid Proceſs, lined with Cartilage, and divided into two ſlanting Surfaces by a middle Ridge, the whole adapted to the Trochlea of the Os Humeri, and with it forming a complete hinge, which allows an extenſive degree of flexion, and as much extenſion as to approach a ſtraight line with the Upper-Arm, but little or no rotation.

Acroſs the middle of the great Sigmoid Cavity, there is a *Pit* for lodging part of the Fat of the Joint.

The *ſmall Sigmoid*, or *ſemilunar Cavity*, lined with Cartilage at the outer ſide of the Coronoid Proceſs, where the round head of the radius plays.

The *Tubercle* of the Ulna, or ſmall rough ſpot for the inſertion of the Brachialis Internus Muſcle.

The

The *Body* of the Ulna, of a *triangular form*, and becoming gradually ſmaller in its deſcent.

The *ſharpeſt Angle* oppoſed to the Radius, for the attachment of the Interoſſeous Ligament.

The ſides forming this Angle, *flat*, and *marked* by the Muſcles which originate from them.

A *Paſſage* ſlanting upwards, about a hand-breadth below the upper end, for the Medullary Veſſels.

The under end of the Bone, forming a *ſmall round Head*, which is covered with Cartilage on that ſide where the Radius moves upon it, and alſo on its extremity, where it is oppoſed to a moveable Cartilage placed between it and the Carpus.

The *Styloid Proceſs*, from which a ſtrong Ligament goes off to be fixed to the Bones of the Wriſt.

## The Radius.

The *Situation* of the Radius at the outer Part of the Fore-Arm.

The *upper End of the Radius*, covered with Cartilage, formed into a circular head, and hollowed above for receiving the outer part of the Articular Cavity of the Os Humeri, where it bends, and extends upon that Bone, along with the Ulna.

*The inner Side of the Head* ſmooth, and alſo covered with Cartilage, where it plays upon its own axis in the ſmall ſemilunar Cavity, at the outer ſide of the Ulna.

The *Cervix* of the Radius, ſmaller than the head, ſurrounded, in the Subject, by a circular Ligament which keeps the Bone in its place, and allows it to roll upon the Ulna.

The *Tubercle* of the Radius, at the under and inner part of the Cervix, for the inſertion of the Biceps Flexor of the Arm.

The *Body* of the Bone, convex on its outer and back-part, and rounded by the Muſcles which cover it.

The *Surfaces* next the Ulna, *flat*, where Muſcles of the Hand take their origin.

The *anterior* and *poſterior Surfaces* terminating in a *ſharp Ridge*, to which the Interoſſeous Ligament of the Fore-Arm is fixed.

A *Paſſage* ſlanting upwards, for the Medullary Veſſels, on the fore-part of the Bone, and about a hand-breadth below its upper end.

A *rough Surface* is found at the outer and middle part of the Bone, for the inſertion of the Pronator radii teres.

The *lower End of the Radius*, becoming gradually larger, and flat on its fore-part, where it is covered by the Pronator radii quadratus Muſcle.

A *Ridge* upon the under and back-part of the Radius, with a Foſſa upon each ſide of it, where the Tendons of the Extenſor Muſcles of the Fingers paſs.

The outer ſide of this extremity of the Bone, *hollowed* by the Extenſors of the Thumb.

A *ſemilunar Cavity* at the inner ſide of the under end of the Radius, lined with Cartilage, for receiving the correſponding extremity of the Ulna upon which the Radius rolls, carrying the Hand with it.

The *lower End* of the Bone formed into a *Cavity* of an *oval form*, and lined with Cartilage for receiving the two firſt Bones of the Carpus.

The under and outer Part of the Radius, forming a Proceſs ſomewhat ſimilar to the Styloid Proceſs of the Ulna.—From this Proceſs a Ligament is ſent to the Wriſt.

## THE HAND,

Compoſed of the Bones of the *Carpus*, *Metacarpus*, and *Fingers*.

The *outer Surface* of the Hand *convex*, which gives it a greater degree of ſtrength.

The *inner Surface* of the Hand *concave*, for graſping and holding Subſtances.

### The Carpus, or *Wriſt*,

*Compoſed of eight Bones*, which form *two Rows*.

In the firſt Row are,
The *Os Scaphoides*, *Lunare*, *Cuneiforme*, *Piſiforme*.

In the ſecond Row,
The *Os Trapezium*, *Trapezoides*, *Magnum*, *Unciforme*.

The poſterior Surface of the Carpus is *convex*, and *marked* by the numerous Ligaments attached to it. The anterior Surface is *hollow*, and alſo marked by Ligaments.

The Surfaces of the Bones of the Carpus, which are articulated

articulated with each other, or with the neighbouring Bones, are *covered with Cartilage*, to facilitate the motion of the Joints.

The Os SCAPHOIDES, or *Boat-like Bone*, placed at the outer and upper part of the Carpus.

The *upper Surface convex*, and articulated with the Radius.

The under and outer Surface, alſo *convex*, to be articulated with the Os Trapezium, and Trapezoides.

Between the upper and under Cartilaginous Surfaces, a *rough Foſſa* for the inſertion of the Capſular Ligament.

The anterior and inner Surface, having an *oval Cavity* which gives name to the Bone, where it is articulated with the Os Magnum.

A *Proceſs* upon the outer end of the Bone, for the attachment of part of the anterior Tranſverſe Ligament of the Wriſt.

The Os LUNARE, *ſituated* upon the inner ſide of the former Bone.

The upper Surface *convex*, for its articulation with the Radius.

The *outer Edge* in form of a *Creſcent*, from which the Bone is named, articulated with the Os Scaphoides.

The *under Surface hollow*, for its articulation with the Os Magnum.

The *inner Surface* of the Bone, articulated with the Os Cuneiforme.

The Os Scaphoides and Os Lunare, forming an *oval head*, which is received into the Socket of the Radius, where extenſive motion is allowed forwards, backwards, and to either ſide.

The Os CUNEIFORME, or *wedge-like Bone*, ſituated on the inner ſide of the former one.

The *anterior Edge* is *thin*, in form of a *wedge*.

The *upper* and *outer Surface* articulated with the Os Lunare.

The *under* and *outer Surface articulated* with the Os Unciforme.

The anterior and inner Surface, forming a ſlight *convexity* for its articulation with the Os Piſiforme.

Between the upper part of this Bone and the Ulna, the *moveable Cartilage* formerly mentioned is interpoſed.

The Os PISIFORME, or *Pea-ſhaped Bone*, placed upon the

the anterior and inner Surface of the Os Cuneiforme, and forming a Prominence which is readily felt in the Wrist, and which gives attachment to strong Tendinous and Ligamentous Substances, particularly to part of the Ligamentum carpi annulare.

The Os TRAPEZIUM, named from the four unequal Edges of its posterior Surface.

The *Situation* of this Bone, at the root of the Metacarpal Bone of the Thumb.

The upper part of the Bone forming a *smooth Pit*, to be articulated with the Os Scaphoides.

The inner side *hollow*, and articulated with the Os Trapezoides.

The under Surface forming a *Pulley*, on which the Metacarpal Bone of the Thumb moves.

The anterior Surface sending out a *Process*, which is prominent in the Palm, and marked by the transverse Ligament of the Wrist, by the Flexor carpi radialis, and Flexors of the Thumb.

The Os TRAPEZOIDES, so named from its being somewhat like the former Bone; but it is considerably smaller.

The *Situation* of the Os Trapezoides, at the inner side of the Os Trapezium.

The upper Surface *hollow*, where it joins the Os Scaphoides.

The outer Surface *convex*, and articulated with the Trapezium.

The *inner Surface*, articulated with the Os Magnum.

The *under Surface*, formed into a sort of *Pulley*, to be articulated with the Metacarpal Bone of the Fore-Finger.

The Os MAGNUM, or CAPITATUM, or *largest Bone* of the Carpus, placed at the inner side of the former Bone, and consisting of four oblong sides, with a round head, and triangular under end.

The *head* or *ball* of the Bone, received into the hollow Surfaces of the Os Scaphoides and Lunare; like Ball and Socket.

The *under part* of the outer side joined to the Os Trapezoides.

The *inner side* to the Os Unciforme.

The *under end* opposed to the Metacarpal Bone of the Middle Finger.

The

The Os UNCIFORME, or *hook-like Bone*, placed in the under and inner part of the Wriſt.

The *upper* and *inner Surface* articulated with the Os Cuneiforme.

The *outer Surface*, articulated with the Os Magnum.

The *inferior Surface*, oppoſed to the Metacarpal Bones of the Ring and Little Fingers.

The anterior Surface, ſending out the *Unciform Proceſs*, which gives name to the Bone.

The Unciform Proceſs *curved*, for the paſſage of the Flexor Muſcles of the Fingers.

The articulation between the firſt and ſecond Row of Carpal Bones, allows motion to each ſide, but chiefly forwards and backwards, though the motion is leſs extenſive than between the Fore-Arm and Wriſt.

In a Fœtus, the Bones of the Carpus are in a Cartilaginous ſtate.

THE METACARPUS, or *Part annexed to the Carpus*,

Conſiſting of *four Bones* for ſupporting the Fingers, and one for the Thumb.

The Metacarpal Bones of the
—Fingers.—

Their *bodies* long and round.

The *extremities* of theſe Bones, conſiderably larger than their bodies.

The *upper ends* or *baſes flat*, where they are articulated with the Bones of the Carpus.

The flatneſs of this end of the Metacarpal Bones, and their ſtrong connecting Ligaments, render the motions here inconſiderable.

Round the Edges of the Cartilaginous Surfaces, at the upper end, the *depreſſions* where the Capſular Ligaments are fixed.

The ſides of the upper ends *flat*, where they are articulated with each other.

A *Ridge* at the upper and back-part of their bodies, with a depreſſion on each ſide of it, formed by the Interoſſei Muſcles.

The under and back-part of their bodies, made *flat* by the motion of the Tendons of the Extenſors of the Fingers.

The anterior Surface of their bodies *concave*, and rendered *flat at the ſides* by the Interoſſei Muſcles.

The *lower ends*, or *heads*, formed into *Balls*, which are flattened upon their ſides by their motions upon each other.

At the fore-part of each ſide of the heads, a little *prominence*, for the attachment of the Ligaments which fix theſe Bones to each other.

Round the heads, a *depreſſion*, for the inſertion of the Capſular Ligaments.

PECULIARITIES of the METACARPAL BONES of the FINGERS.

The *Baſe* of the *Metacarpal Bone of the Fore-Finger*, oppoſed to, and correſponding with, the Os Trapezoides, and partly with the Trapezium.

The inner part of the Baſe, forming a *Ridge*, which is articulated with the Os Magnum, and with the next Metacarpal Bone.

The connection of the Baſe is ſo firm, that it has little or no motion.

The *Metacarpal Bone of the Mid-Finger*, commonly the *ſecond in length*.

The Baſe of the Bone commonly ſlants inwards and downwards, oppoſed to the Os Magnum.

The outer and back-part of the Baſe, *projecting*, and forming a ſort of *Proceſs*, the external Surface of which is connected with the Ridge of the former Bone.

The motion of this Bone is little more than that of the former one.

*The Metacarpal Bone of the Ring-Finger*, *ſhorter* than the former Bone.

Its Baſe *ſemicircular* where it is oppoſed to the Os Unciforme.

The motion is ſomething greater than that of the former Bone.

The *Metacarpal Bone of the Little-Finger* the *ſmalleſt* of the four.

The Baſe, which ſlants downwards and outwards, oppoſed to the under and inner part of the Os Unciforme.

The inner part of the Baſe has no ſmooth Surface, not being contiguous to any other Bone.

From the nature of the Joint, the looſeneſs of the Ligaments, and from there being a proper Muſcle here, this Bone poſſeſſes a larger ſhare of motion than any of the reſt.

The *Metacarpal Bone of the Thumb*, having the general

reſemblance

resemblance of those of the Fingers; but it differs from them in being placed oblique with respect to the Metacarpal Bones of the Fingers, and in some measure opposing them.

It is thicker and stronger, but shorter than those of the Fingers.

The *Base* of this Bone articulated with the Pulley formed by the Trapezium. It appears to admit of flexion and extension only, but, from the looseness of the Ligaments, it enjoys the same kind of motion with Joints formed after the manner of Ball and Socket.

The *inferior extremity* of the Bone, considerably *flatter* than those of the other Metacarpal Bones.

The FINGERS, *composed* each of three Bones, and the three Rows of Bones termed *Phalanges.*

The different Phalanges, *tapering* a little as they descend, and their Bases larger than their inferior extremities.

The posterior Surfaces *convex*, and covered chiefly by the tendinous expansions of the Extensors of the Fingers.

Their anterior Surfaces, *flat*, and in some parts *concave*, for lodging the Tendons of the Flexor Muscles.

*Ridges* at the sides of their anterior Surfaces, for the attachment of the retaining Ligaments of the Tendons of the Flexor Muscles.

The first Phalanx *longer* than the second, and the second than the third.

The *Bases* of the first Phalanx, formed into *Sockets* to receive the Balls of the Metacarpal Bones, and to allow motion to all sides.

The lower ends of this Phalanx, consisting of *lateral Prominences*, and *middle Cavities* or Pulleys, the Cartilaginous Surfaces of which reach considerably farther up in the fore than in the back part.

The *Bases* of the second Phalanx, with *lateral Cavities*, and *middle Ridges*, corresponding with the Pulley of the first Phalanx, and admitting of flexion and extension only.

The *lower ends* of this Phalanx similar to that of the first.

The *Base* of the *third Phalanx*, like that of the second, and the motions also similar.

The under ends of the third Phalanx, *rough* where the Pulpy, Vascular, and Nervous Substance of the points of the Fingers is situated.

The

The Peculiarities of the Bones of the Fingers conſiſt only in their ſize.

The Bones of the Mid-Finger the largeſt and longeſt.

Thoſe of the Ring-Finger next in length.

The Bones of the Fore-Finger, next to the Ring-Finger in length, and to the Mid-Finger in thickneſs.

Thoſe of the Fourth-Finger the ſmalleſt.

The *Thumb*, conſiſting of only *two* Bones.

The *firſt* Bone, like thoſe of the firſt Phalanx of the Fingers, but *thicker* and *ſhorter*.

The *Cavity* at the Baſe of the Bone, longer from one ſide to the other, and ſhallower than thoſe of the Fingers, but, like them, forming a Socket for the Metacarpal Bone. From the flatneſs of the Joint, however, and ſtrength of the lateral Ligaments, the motions here are confined to flexion and extenſion.

The *lower end* of the firſt Bone of the Thumb, like that of the firſt of the Fingers.

The *ſecond Bone* of the Thumb, like the *third* of the Fingers, but broader.

The *Baſe* of this Bone, like that of the ſecond and third Bones of the Fingers, and like their Joints alſo, admitting of flexion and extenſion only.

THE

## THE INFERIOR EXTREMITIES.

THE *Inferior Extremities* are compofed of the Thighs, Legs, and Feet.

The *Thigh* confifts of a fingle Bone, viz.

### THE OS FEMORIS, or *Thigh-Bone.*

The Os Femoris is the *longeft* of the Body, and *thickeft* and *ftrongeft* of the Cylindrical Bones.

The *Situation* of the Bone, at the under and outer part of the Pelvis.

The *oblique* Situation of the *body* of the Bone, the under end being confiderably nearer its fellow on the other fide, than the upper one is, which is favourable for the paffages at the bottom of the Pelvis, for the origin of Mufcles, and for walking.

The *Ball*, or *Head* of the Thigh-Bone, fmooth, covered with Cartilage, and forming almoft two-thirds of a Sphere, which is received into the deep Socket formed by the Acetabulum of the Os Innominatum.

A *rough Pit* at the under and inner part of the Ball, for the attachment of the Ligamentum Rotundum, which is fixed by its other end to the bottom of the Acetabulum.

The *Cervix*, or *Neck*, much longer than that of any other Bone, paffing obliquely downwards and outwards from the Ball, to allow the free motion of the body of the Bone, in different directions. It is reftrained, however, in its motion outwards, by the Ligamentum Rotundum, and by the high Brim of the Acetabulum.

*Numerous Holes* in the Cervix, for the infertion of the Fibres of the Ligament reflected from the Capfular one.

The *Trochanter major*, placed at the outer part of the Neck, and upper end of the body of the Bone, for the infertion of the Extenfor, Abductor, and Rotator Mufcles of the Thigh.

*Two rough Surfaces* upon the upper and fore-part of the large Trochanter, for the infertion of the two fmall Glutei Mufcles.

A *Cavity* is placed, at the inner fide of the root of the large Trochanter, for the infertion of the Rotator Mufcles of the Thigh.

The

The *Trochanter minor*, at the under and inner part of the Cervix, for the inſertion of the Flexor Muſcles of the Thigh.

A *rough Line* on the fore-part of the Bone, between the two Trochanters, for the Inſertion of the Capſular Ligament.

A rough Line between the Trochanters, on the *back-part* of the Bone, for the inſertion of the Capſular Ligament, and the Quadratus Femoris Muſcle.

The *Body* of the Thigh-bone, *bent forwards*, and of a *roundiſh form* above, but ſomewhat *triangular* about its middle.

The *fore-part* of the Bone, *flat* where it is covered by the Crureus Muſcle.

The *Sides* of the Bone are *flattened* at its middle and lower part, by the two Vaſti Muſcles.

The *Linea Aſpera*, or *ragged Ridge* on the back-part of the Bone, extending from the Trochanters, but chiefly from the large one, to the lower part of the Bone, and giving attachment to numerous Muſcles which paſs from the Pelvis to the Thigh, or from the Thigh to the Leg.

The lower End of the Linea Aſpera, dividing into *two Lines*, which terminate in the Condyles.

The *Canal* for the Medullary Veſſels, ſlanting upwards, a little below the middle of the poſterior part of the Bone.

The under and back-part of the Bone, *flat* where the Popliteal Veſſels and Nerves are placed.

The *lower End* of the Bone, much larger than its body, and perforated by many Holes, for the inſertion of the Capſular Ligament of the Knee, and paſſage of the Nutritious Veſſels of the Bone.—It is alſo marked by the inſertion of ſeveral Muſcles.

The *Cartilaginous Trochlea* at the under and fore-part of the Bone, placed obliquely, with its outer Surface higher than its inner one, to be adapted to the Patella, which moves upon it.

The *external* and *internal Condyles*, continued back from the Trochlea, and covered with Cartilage for the motion of the Tibia.

The internal Condyle, *larger* and *deeper* than the external, to compenſate for the obliquity of the Thigh, and give leſs obliquity to the Leg.

A *Notch* between the back-part of the Condyles, for lodging the Popliteal Veſſels and Nerves.

The

A *femilunar rough Notch*, deeper and lower than the former one, for the attachment of the Crucial or internal Ligaments of the Knee.

## THE LEG.

*Compofed* of the two Bones,—the Tibia and Fibula, to which may be added the Patella.

### The Tibia,

Situated at the inner part of the Leg.

The *upper End* of the Tibia, forming a *large Head*, and that divided on its upper Surface into *two fuperficial Cavities*, for receiving the Cartilaginous part of the Condyles of the Thigh-Bone.

A *rough Protuberance* between the articulating Cavities, pitted on its fore and back-part, for the infertion of the anterior and pofterior Crucial Ligaments.

The articulating Surfaces at the upper end of the Tibia, are rendered deeper in the Subject by the addition of two femilunar Cartilages placed upon their Edges.

The Circumference of the Head of the Bone, *rough* and *porous*, for the infertion of the Capfular Ligament.

The articulation of the upper end of the Tibia with the Os Femoris, is of fuch a nature as to allow flexion and extenfion, but no lateral nor rotary motion in the extended ftate, though a fmall degree of both when the Knee is bended.

A Tubercle at the upper and fore-part of the Bone, for the infertion of the lower Tendon or Ligament of the Patella.

A *Cartilaginous Surface* under the outer Edge of the Head of the Bone, for the articulation with the upper end of the Fibula.

The *Body* of the Bone *triangular*, with the fharpeft Angle placed anteriorly.

The *anterior Angle*, called *Spine* or *Shin*, a little waved, and extending from the Tubercle to the inner Ancle.

The *anterior* and *inner Surface* of the Bone, *fmooth*, being covered with fkin only.

The *anterior* and *outer Surface*, *hollowed* above and below by the Extenfor Mufcles of the Toes.

The

The middle of the poſterior Surface, *hollowed* by Muſcles which aſſiſt in extending the Foot, and bending the Toes.

A *Ridge* extending obliquely downwards from the upper and outer part of the Bone, poſteriorly to its inner Angle, and giving origin to part of the Muſcles which extend the Foot and bend the Toes.

A *flat Surface* above the Ridge, pointing out the ſituation of the Popliteous Muſcle.

The *Canal* for the Medullary Veſſels, ſlanting downwards at the inner and back-part of the Bone, a little above its middle.

The under end of the Tibia, *ſmaller* than the upper one, and its inferior Surface covered with Cartilage, for the articulation with the Aſtragalus.

The *Malleolus internus*, or *inner Ancle*, produced from the inner part of the under end, and covered with Cartilage where the Aſtragalus plays.

A *Pit* in the point of the Malleolus Internus, for the attachment of the internal lateral Ligament, and a *Groove* behind, where the Tendons of the Tibialis Poſticus Muſcle is placed.

The *ſemilunar Cavity*, at the under and outer ſide of the Tibia, for receiving the under end of the Fibula.

Round the edge of the articulating Cavity, the Bone is marked by the inſertion of the Capſular Ligament.

### The Fibula,

Placed at the outer ſide of the Tibia, and by much the ſmaller of the two Bones.

The upper end of the Fibula, formed into a *large Head*, with a *ſuperficial ſmooth Cavity* towards its inner ſide, to be articulated with the Tibia, where it is tied by Ligaments of ſuch ſtrength, as to allow very little motion.

The *Head* of the Fibula, *irregular* and *rough* externally, for the inſertion of the Biceps Flexor Cruris, and the external lateral Ligament of the Knee.

The *Body* of the Bone bent a little inwards and backwards, and unequally triangul[illegible], with the Surfaces between the Angles, marked by the Muſcles which ariſe from it, or are placed upon it.

A *Ridge* at the inner ſide of the Fibula, oppoſed to one

one at the outer part of the Tibia, for the inſertion of the Interoſſeous Ligament.

A *Canal* on the back-part of the Bone, ſlanting obliquely downwards, for the paſſage of the Medullary Veſſels.

The *under End* of the Fibula, *broad* and *flat*, to be received by the ſemilunar cavity of the Tibia, where it is fixed ſo firmly by ſtrong Ligaments, as to have no ſenſible motion.

The *Malleolus externus* of the Bone, or outer Ankle, lower and farther back than the inner Ankle.

A *convex ſmooth Surface* on the inner ſide of the Malleolus externus, oppoſed to the outer ſide of the Aſtragalus, which moves upon it.

The *Coronoid Proceſs*, ſent down from the Malleolus externus, from which Ligaments go to the Bones at the outer ſide of the Foot.

There is a *Furrow* upon the back-part of the Malleolus externus, for lodging the Tendons of the Peronei Muſcles.

### The Patella, Rotula, or Knee-Pan,

Placed at the fore-part of the Joint of the Knee, and compared by ſome authors to the Olecranon of the Ulna.

The *ſhape* of the Patella, *triangular* and *flat*, or of the figure of a Heart, as painted upon playing cards.

The *anterior Surface* of the Bone, *convex*, and perforated by numerous Holes, for the inſertion of Tendons and Ligaments which cover it.

The *poſterior Surface*, which correſponds with the Trochlea of the Os Femoris, ſmooth, covered with Cartilage, and divided by a longitudinal prominent Ridge into two unequal Cavities.

The circumference of the articular Surface, *marked* by a *rough Line*, into which the Capſular Ligament of the Joint is fixed.

The Baſe, or upper part of the Bone, *horizontal*, and *marked* by the inſertion of the Tendons of the Extenſors of the Leg.

The back-part of the Apex, *rough* and *depreſſed*, for the attachment of the Ligament, paſſing from the Patella to the Tubercle of the Tibia.

The Ligaments of the Patella allow it to be moved *upwards* and *downwards*; and when the Leg is extended, they admit of its *motion to either ſide*, or to be *rolled*.

When the Leg is extended, the Patella is lodged in the Trochlea of the Os Femoris; when the Limb is bent, it is pulled down by the Tibia, and lodged in a hollow at the fore-part of the Knee.

The Patella allows the Muſcles fixed to it to act with greater advantage in extending the Leg.

It is entirely Cartilaginous at birth.

## THE FOOT,

### Compoſed of *Tarſus*, *Metatarſus*, and *Toes*.

### The Tarsus, or *Inſtep*,

Compoſed of ſeven Bones, viz. The *Aſtragalus*, *Os Calcis*, *Naviculare*, *Cuboides*, *Cuneiforme externum*, *Cuneiforme medium*, and *Cuneiforme internum*.

The upper part of the Tarſus is *convex*, the under part *concave*.

In the *Concavity* are lodged numerous *Muſcles*, *Veſſels*, and *Nerves*, belonging to the Sole.

The different Bones of the Tarſus have their *rough Surfaces joined together by ſtrong Ligaments*, and their parts of articulation *covered with Cartilage*, in ſuch a manner as to form a ſtrong and elaſtic arch, for ſupporting the weight of the Body, and leſſening the ſhock it would otherwiſe undergo in the different motions it has to ſuſtain.

The Astragalus, or *Ankle-Bone*, placed under the Bones of the Leg.

The upper part of the Aſtragalus, formed into a *large Head*, which is ſmooth on its upper part and ſides, to be articulated with the under end of the Leg Bones.

Each of the Cartilaginous Surfaces of the Head of this Bone is *depreſſed* in its middle, to correſpond with the parts of the Leg-Bones with which they are articulated.

Round the edge of the articulating Surfaces, a *rough Foſſa* for the inſertion of the Capſular Ligament; and at the ſides of this Surface, the Bone marked by the lateral Ligaments.

The Joint between the Aſtragalus and Leg-Bones, forming a complete Hinge, which, together with the aboee-mentioned Ligaments, allows the Foot to bend and extend upon the Leg, but admits of no lateral or rotatory motion, except in the extended ſtate, when there is a little of each.

The

The under part of the Bone, confifting of a *deep Foſſa*, which divides it into an anterior and poſterior articulating Surface.

The Foſſa in the under Surface, narrower at the inner part of the Bone, and becoming gradually wider as it goes outwards and forwards.

The *poſterior articulating Surface*, *large* and *concave*, for its articulation with the upper and middle part of the Os Calcis.

The *anterior articulating Surface*, *irregular* and *convex*, where it plays upon two ſmooth Cavities at the inner and fore-part of the Os Calcis, and upon a Cartilaginous Ligament extended between the Os Calcis and Os Naviculare.

A *large oblong ſmooth Head*, at the fore-part of the Bone, for its articulation with the Os Naviculare.

The Os Calcis, or *Heel-Bone*, the largeſt of the Tarſal Bones, ſituated under the Aſtragalus, and in the back-part of the Foot.

A *large Knob*, projecting behind, to form the Heel.

A *ſuperficial Cavity* in the upper and back-part of this Knob, for the inſertion of the *Tendo-Achillis*.

A *ſmooth Convexity* on the upper part of the Bone, for its articulation with the under and back-part of the Aſtragalus.

A *Foſſa* at the fore-part of this articulating Surface, running forwards and outwards, and giving origin to ſtrong Ligaments which are inſerted in the correſponding Foſſa of the Aſtragalus.

*Two Prominences* at the inner and fore-part of the Bone, concave, and ſmooth above, with a pit between them, for the articulation with the under and fore-part of the Aſtragalus.

From the poſterior Prominence the Cartilaginous Ligament ariſes, which is fixed to the Os Naviculare.

A *large Cavity* at the inner ſide of the Bone, between the poſterior of the two laſt mentioned Proceſſes and projection of the Heel, for lodging the Tendons of the long Flexors of the Toes, together with the Veſſels and Nerves of the Sole.

The external Surface of the Bone, *depreſſed* near its fore-part, where the tendon of the long Peroneus Muſcle runs in its way to the Sole.

The under and back-part of the Bone, forming *two Prominences*, where it gives origin to the Aponeuroſis and

 ſeveral

ſeveral Muſcles of the Sole; and before the Prominences, the Bone *concave*, where it lodges part of theſe Muſcles.

The anterior Surface *concave*, and ſomewhat in form of a Pulley placed obliquely, for its articulation with the Os Cuboides.

The *Os Calcis* is articulated with the Aſtragalus by Ligaments of ſuch ſtrength, that this part of the Foot, upon which the Body reſts, is rendered firm and ſecure, but enjoys very little motion.

The Os NAVICULARE, or *Boat-like Bone*, ſituated at the fore-part of the Aſtragalus, and inner part of the Foot.

The *poſterior Surface*, forming a Cavity ſomewhat like that of a Boat, for receiving the head of the Aſtragalus in the manner of Ball and Socket.

A *Prominence* at the inner ſide of the Bone, for the inſertion of Tendons, Muſcles, and ſtrong Ligaments, particularly for the Ligament ſtretched between this Bone and the Os Calcis, for the ſupport of the Aſtragalus.

The *fore-part* of the Bone, *convex*, and divided into *three articular Surfaces*, for the articulation with the Oſſa Cuneiformia.

Between the Os Naviculare and Aſtragalus, the Foot has its principal lateral and rotatory motions, though each of the other Joints of the Tarſus contributes a little.

The Os CUBOIDES, or *Bone of a Cubic form*, placed at the fore and outer part of the Tarſus.

The *poſterior Surface* of this Bone, *ſmooth*, *convex* at its *inner*, and *concave* at its *outer* part, correſponding with the anterior extremity of the Os Calcis.

The *inner ſide*, articulated with the Os Naviculare and external Cuneiform Bone.

Its *under Surface irregular*, where it gives attachment to ſtrong Ligaments, and to the Adductor Pollicis Muſcle.

A *deep Foſſa* in the outer and under part of the Bone, for lodging the Tendon of the Peroneus longus, where it croſſes the Sole.

The *anterior* extremity, divided into a ſmall inner, and large outer plain Surface, to be articulated with the fourth and fifth Metatarſal Bones.

The three OSSA CUNEIFORMIA, or *wedge-ſhaped Bones*, ſituated

ſituated at the fore-part of the Tarſus, and inner ſide of the Cuboid Bone.

The *upper part* of theſe Bones, *flat*, where they are covered with Ligaments.

The *under part*, *irregular*, for the attachment of Muſcles and ſtrong Ligaments lying in the Sole.

The *poſterior Surface*, *flat*, and covered with Cartilage, to be articulated with the Os Naviculare.

The *anterior Surface*, alſo flat, for the articulation with the Metatarſal Bones.

The *Os Cuneiforme externum*, or *medium*, of a middle ſize between the next two Bones, and oppoſed to the Metatarſal Bone of the Third Toe.—The outer ſide of this Bone is articulated with the Os Cuboides.

The *Os Cuneiforme medium*, or *minimum*, the leaſt of the three, and articulated at its outſide with the former Bone, and anteriorly with the ſecond Metatarſal Bone.

The *Os Cuneiforme internum*, or *maximum*, the largeſt of the Cuneiform Bones, and placed obliquely, with its anterior Surface oppoſed to the Metatarſal Bone of the great Toe.

The ſharp Edge of this Bone is turned upwards, while that of the other two is in the oppoſite direction.

The *Navicular*, *Cuboid*, and *Cuneiform Bones*, are almoſt Cartilaginous at birth.

THE METATARSUS, or *Bones placed upon the Tarſus.*

Compoſed of *five Bones*, which anſwer to the general characters given to the Metacarpal Bones.

Their *bodies* are *long*, *arched upwards*, and *tapering* towards their anterior extremities.

The *extremities large* in proportion to their bodies, and the poſterior much larger than the anterior.

The *Baſes flat*, or a very little *hollowed*, to be articulated with the fore-part of the Tarſal Bones.

From the flatneſs of their Baſes, and the ſtrength of the Ligaments which fix theſe Bones to thoſe of the Tarſus, very little motion is allowed to this part of the Foot.

Round the Baſes, *rough Surfaces* for the attachment of Ligaments.

The *Sides of the Baſes*, *flat*, where they are articulated with each other.

A *Ridge* above, and a *flat Surface* at each ſide of their bodies, for the origin of the Interoſſeous Muſcles.

The *flat Surfaces* turned obliquely outwards, and the obliquity increaſing the more externally the Bones are placed.

The *anterior Extremities* forming *Balls*, to be articulated with the Toes;—the Balls much longer from above downwards, than they are from one ſide to the other.

Round the Heads, a *diſtinct impreſſion*, where the Capſular Ligaments are fixed.

### Peculiarities of the Metatarsal Bones.

The *Metatarſal Bone of the Great Toe*, by much the thickeſt and ſtrongeſt, but ſhorteſt of the Metatarſus.

The *articulating Cavity* of its Baſe, *deeper* than the reſt.

The *anterior Extremity* bears a greater proportion to the *Baſe* than the reſt, having a much larger ſhare of the weight of the Body to ſuſtain here, and is formed into a *middle Prominence*, with *two lateral Depreſſions*, where the Oſſa Seſamoidea move.

The *Metatarſal Bone of the ſecond Toe*, the longeſt of the five.

The *Metatarſal Bone of the middle Toe*, the ſecond in length, with a Baſe like that of the former Bone, triangular, but a little larger, to be articulated with the Os Cuneiforme externum.

The *Metatarſal Bone of the fourth Toe*, nearly of the ſame length as the former, but diſtinguiſhed from it by its Baſe being thicker below, and its Cartilaginous Surface being more of a ſquare form, correſponding with the anterior and inner part of the Os Cuboides, with which it is articulated.

The *Metatarſal Bone of the little Toe*, the ſhorteſt, with flat Surfaces facing upwards and downwards.

The *Baſe* which reſts on the Os Cuboides, projecting outwardly into a large Tuberoſity, which gives origin to Muſcles, and forms one of the points on which the Body reſts in ſtanding.

The *Bones of the Toes*, the ſame in number with thoſe of the Fingers, viz. two to the Great Toe, and three to each of the ſmaller Toes, and the different Bones here, as in the Fingers, diſpoſed in Ranks or Phalanges.

The *two Bones of the Great Toe*, like thoſe of the Thumb, but ſtronger, and placed in the ſame Row with the Bones

Bones of the Toes, for the purpoſe of walking, and aſſiſting in ſupporting the Body.

The *Bones of the ſmaller Toes*, every way leſs than thoſe of the Fingers.

Their *under Surface, depreſſed*, where the Tendons of their Flexor Muſcles are lodged.

The *Baſes* of the firſt Phalanx, as in the Fingers, forming Sockets to receive the Balls, or heads of the Metatarſal Bones.

The *Joints* between the firſt and ſecond Phalanx, and alſo between the ſecond and third, as in the Fingers, forming Hinges, and the motions ſimilar, but more confined.

Of the ſmall Toes, the *firſt*, or that next the Great Toe, the *largeſt*, the reſt becoming *ſmaller* the more externally they are placed.

The ſecond and third Bones, eſpecially of the little Toe, are frequently joined by an union of Subſtance.

## OSSA SESAMOIDEA.

*The Oſſa Seſamoidea are the only Bones of the Skeleton which remain to be deſcribed.*

THEY are ſmall Bones, compared in ſhape to the ſeeds of the Seſamum, or oily grain.

Their ſize, ſituation, and number, vary in different perſons.

They are ſometimes found at the roots of the Fingers and ſmall Toes; at the ſecond Joint of the Thumb, and that of the Great Toe; between the Condyles of the Os Femoris and Gaſtrocnemius Muſcle; between the Tendons of the Peroneus Longus and Os Cuboides, &c.

Thoſe commonly obſerved are placed in pairs at the roots of the Thumb and Great Toe, between the Tendons of their Flexor Muſcles and Joints.

They are *convex* on their outer Surface, where they are incloſed by the Tendons and Ligaments fixed to them.

And *concave*, and lined with Cartilage next the Joints, where they play upon the Bones with which they are articulated.

They are conſidered by Anatomiſts as ſerving the ſame general purpoſe with the Patella.

PRIN-

# PRINCIPAL DIFFERENCES

## BETWEEN THE MALE AND FEMALE SKELETON.

The Female Skeleton is obſerved, in general, to be ſmaller and ſlenderer throughout than that of the Male.

A ripe Female Bone, of the ſame ſize with a Male Bone, is uſually diſtinguiſhed by the Ridges, Depreſſions, rough Surfaces, and other inequalities, being leſs conſpicuous in the former.

The circumference of the Female Skull is ſaid by a a late Author to be larger.

The Os Frontis has been found to be more frequently divided by a continuation of the Sagittal Suture.

The Frontal Sinuſes are obſerved to be narrower.

All the Bones of the Face more delicate.

The Bodies of the Vertebræ longer.

The Intervertebral Subſtances deeper or thicker.

The upper part of the Thorax in proportion wider.

The under part narrower, or the whole Thorax leſs conical.

The Cartilages of the True Ribs longer in proportion to the Oſſeous part, and broader and flatter to ſupport the Breaſts.

The Sternum more raiſed, and the whole Thorax more diſtant from the Pelvis.

The length of the Sternum leſs, and terminating below in a line nearly oppoſite to the plane of the fourth pair of Ribs, but in the Male Skeleton terminating oppoſite to the fifth Rib.

The length of the Loins greater.

All the diameters of the Pelvis larger.

The Spines and Proceſſes of the Oſſa Innominata farther diſtant from each other.

The Os Sacrum broader, and turned more backwards, for enlarging the Cavity of the Pelvis.

The Os Coccygis more ſlender, and turned more backwards, and having a greater degree of motion.

The Oſſa Ilia flatter, and more reflected outwards, by which the under part of the Abdomen is rendered more capacious.

The Notches of the Oſſa Ilia wider, and the conjoined Surfaces of the Oſſa Innominata and Os Sacrum leſs.

The

The ſpace between the Oſſa Pubis larger; of courſe the Ligamentous Cartilage of the Symphyſis broader, though ſhorter.

The Angle formed by the Crura of the Oſſa Pubis with the Symphyſis larger, that of the Male being acute, while in the Female the Angle extends to 80 or 90 degrees.

The Tuberoſities of the Oſſa Iſchia flatter, and at a greater diſtance from each other.

The Brim of the Pelvis wider, and of an oval form, correſponding with the head of a child, and the longeſt diameter extending between the Oſſa Ilia.

In the Male the Brim of the Pelvis has more of a circular appearance, and has the greateſt extent between the Oſſa Pubis and Sacrum.

The opening at the under part of the Pelvis in the female is much wider, and of an oval form, but the oval the reverſe of that at the Brim.

The Foramina Ovalia wider.

All the openings at the under part of the Pelvis, being wider, leave a large paſſage for the birth of the child.

In conſequence of the Pelvis being wider, the Acetabula are farther diſtant from each other, which obliges women who are very broad at this part of the Body to wagle when they walk.

The Oſſa Femorum are more curved, the neck of the Thigh-bone forms a greater Angle with the Body, and the Internal Condyle is larger.

The feet are ſmaller.

The Clavicles leſs crooked.

The Scapulæ are ſmaller, and their Angles more acute.

The Superior Extremities ſhorter.

The Oſſa Carpi narrower, and

The Fingers more tapering towards their extremities.

*END OF PART FIRST.*

The space between the Ossa Pubis largery of course the Ligamentous Cartilage of the Symphysis broader, though shorter.

The Angle formed by the Crura of the Ossa Pubis with the as wide as larger, that of the Male being acute, while in the Female the Angle extends to 80 or 90 degrees.

The Tubercles of the Ossa Ischia flatter, and at a greater distance from each other.

The form of the [illegible] and of an oval form, corresponding with the [illegible], and the length [illegible] extending between the Ossa Ilia.

In the Male the Brim of the Pelvis has more of a circular appearance, and has the greatest extent between the Os Sacrum and Pubis.

The opening of the Lower part of the Pelvis in the female is much wider, and of an oval form, but the oval the reverse of that at the Brim.

The Foramina Ovalia wider.

All the openings of the upper part of the Pelvis being [illegible] give a large passage for the birth of the Child.

In consequence of the Pelvis being wider, the Acetabula are further distant from each other, which obliges [illegible] who are very broad at this part of the Body to [illegible] when they walk.

The Ossa Femorum are more curved, the [illegible] of the [illegible] forms a greater Angle with the Body, and the external Condyle is larger.

The Feet are smaller.

The Clavicles less crooked.

The Scapulae are smaller, and their Angles more [illegible].

The Superior Extremities smaller.

The Tibia [illegible] shorter and [illegible].

The Fingers more tapering towards their extremities.

END OF PART FIRST.

# PART II.

OF

# THE MUSCLES.

OF THE

# MUSCLES IN GENERAL.

THE MUSCLES ferve for the motions of the different parts of the Body, and derive their general name from their power of contracting.

The following parts to be obferved of Mufcles in general.

The *Cellular Subftance*, which furrounds the Mufcles, and allows them to move upon each other, and upon the adjacent parts.

The *Cellular Subftance, condenfed* in certain parts of the Body, and giving an appearance of *Membrane*, formerly called *Tunica Propria Mufculorum*.

The *divifion* of a Mufcle, into

*Origin*, or *Head*;—or that which arifes from the moft ftable or fixed part, and towards which the contraction is made;

*Belly*, or *thickeft part*, which fwells when the Mufcle is in action;

*Infertion*, or *termination*, which is implanted into the part to be moved, and which is commonly fmaller than the Origin.

*The divifion of a Mufcle into Flefhy and Tendinous parts.*

The *Flefhy part* diftinguifhed by being *foft*, *fenfible*, generally of a *red colour*,—from the great quantity of Blood in it,—and poffeffing *contractility*.

The Flefhy part having numerous *Blood Veffels*, *Lymphatics*, and *Nerves*.

*Divifion* of Mufcles into *Rectilineal*,—as in the *Sartorius*;—*Simple Penniform*, as in the *Peroneus Longus*;—*Complete Penniform*, as in the *Rectus Femoris*;—*Compound Penniform*, as in the *fore part of the Soleus*;—and *Radiated*, as in the *Pectoralis Major*;—*Hollow*, as in the *Heart*, *Inteftines*, *Bladder of Urine*, &c.

The *particular names* of Mufcles, taken from their *fhape*, *fize*, *fituation*, *direction*, *compofition*, *ufe*, and *attachment*.

*Tendon*, diftinguifhed from the Flefhy part, by being generally *fmaller*, *firmer*, *ftronger*;—of a *white gliftening colour*,

*colour*, having no *contractility*, and little or no *ſenſibility* in the ſound ſtate.

*Tendons* having very few *Blood-Veſſels*, and no evident *Nerves*.

The *uſe* of Tendons, to connect Muſcles to Bones, and take up leſs room, &c.

The *Appendages* of Muſcles, viz.

*Aponeuroſes*, or *Faſciæ*, (the former name derived from the parts having been miſtaken for nerves), are the Tendons expanded upon a wide Surface, and ſerving to give inſertion to Muſcular Fibres, to keep them in their proper ſituation, and brace them in their action.

*Annular Ligaments*, to keep Tendons from ſtarting.

*Trochleæ*, or *Pulleys*, to alter the direction of Tendons.

*Burſæ Mucoſæ*, placed where Tendons play over hard Subſtances, and ſerving to contain Synovia, and prevent Abraſion.

MUSCLES

# MUSCLES OF THE INTEGUMENTS OF THE CRANIUM, AND OF THE EYE-LIDS.

## OCCIPITO-FRONTALIS,

Or *Occipitalis and Frontalis*, or *Epicranius*, &c.

*Origin:* Fleſhy from near the middle of the upper arched Ridge of the Occipital Bone, Tendinous from the extremity of that Ridge, where it joins the Temporal Bone; it ariſes after the ſame manner on the other ſide. From the Fleſhy origins, and alſo from between them, a Tendinous expanſion is continued along the upper part of the Cranium, adhering firmly to the ſkin, and but looſely to the Pericranium.—At the upper part of the Fore-head it becomes Fleſhy, and, deſcending with ſtraight Fibres, has its

*Inſertion* in the Skin and parts under it belonging to the Eye-brows.

From the under and middle part of the Muſcle, a *Slip* is continued down upon the root of the Noſe, to be connected with the Compreſſor Naris, and Levator Labii Superioris, et Alæ Naſi.

*Action* of the Muſcle: To move all that part of the Skin which covers it, and particularly the Skin of the Brow and Eye-brows.

The Slip upon the Noſe may either aſſiſt the Naſal Muſcles connected with it, or antagonize the Occipito-Frontalis.

## CORRUGATOR SUPERCILII.

*Origin:* From the internal angular Proceſs of the Os Frontis, above the joining of that Bone with the Os Naſi.

From that it runs upwards and outwards, in the direction of the Superciliary Ridge, and behind the inferior part of the Frontal Muſcle.

*Inſertion:* Into the inner part of the Occipito-Frontalis and Orbicularis Palpebrarum, where theſe two Muſcles join each other.

*Action:* To aſſiſt its fellow in drawing the Eye-brows downwards and inwards, and corrugating or wrinkling the Skin between them into longitudinal folds.

ORBICULARIS OCULI, or *Palpebrarum.*

*Origin:* From the Orbitar Procefs of the fuperior Maxillary Bone; from the internal Angular Procefs of the Frontal Bone; and, by a fmall round Tendon, from the Nafal Procefs of the fuperior Maxillary Bone.

From thefe origins the Mufcle paffes outwards, under the Skin of the Eye-lids, furrounding the Orbit in a circular direction, extending fomewhat beyond it, and covering the upper part of the Cheek.

The outer Surface of the Mufcle adheres to the Skin of the Eye-lids; its upper and inner Edge is intimately connected with the Frontal and Corrugator Mufcles.

*Action:* To clofe the Eye by bringing the Eye-lids together, to prefs the Ball of the Eye inwards, and act upon the Lacrymal Organs, fo as to affift them in the production and direction of the Tears.

*Mufculus Ciliaris* of fome authors,—named from its fituation near the Cilia, or Eye-lafhes,—is that part of the Orbicularis Oculi which covers the Cartilages of the Eye-lids, and is remarkably thin.

A *Flefhy Slip* frequently paffes down from the under and outer part of the Orbicularis, to join the Levator Labii Inferioris et Alæ Nafi. When prefent it may draw the parts to which it is attached a little towards each other.

LEVATOR PALPEBRÆ SUPERIORIS.

*Origin:* From the margin of the Foramen Opticum of the Sphenoid Bone.

It runs forwards within the Orbit, over the Levator Oculi, where it becomes gradually broader, its anterior extremity paffing under the Orbicularis Palpebrarum.

*Infertion:* By a broad thin Tendon, into nearly the whole length of the Cartilage of the upper Eye-lid.

*Action:* To open the Eye by raifing the upper Eye-lid.

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## MUSCLES COMMON TO THE HEAD AND EXTERNAL EAR.

ATTOLLENS AUREM, or *Superior Auris.*

*Origin:* By a broad Tendinous expanfion, from the Tendon of the Occipito-Frontalis. It goes down over the Aponeurofis of the Temporal Mufcle.

In

In its paſſage, it forms a thin Fleſhy Slip, which becomes gradually narrower, and has its

*Inſertion* in the upper part of the root of the Cartilage of the Ear.

*Action:* To give tenſion to the part into which it is inſerted, and, in ſome perſons, to raiſe the Ear.

### Anterior Auris.

*Origin:* Thin and Membranous, near the poſterior part of the Zygoma.

The middle part is mixed with Fleſhy Fibres.

*Inſertion:* By a narrow Tendon into the back-part of the beginning of the Helix.

*Action:* To ſtretch that part of the Ear to which it is fixed.

### Retrahentes Auris, or *Poſterior Auris.*

*Origin:* By two, and ſometimes by three diſtinct Muſcles, from the upper and outer part of the Maſtoid Proceſs: Paſſing forwards, they have their

*Inſertion,* by ſmall Tendons in the back-part of the Concha.

*Action:* To ſtretch the Concha, and, in ſome perſons, to draw the Ear back.

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## MUSCLES OF THE NOSE AND MOUTH.

### Compressor Naris.

*Origin:* By a narrow beginning from the Ala Naſi, where it is connected with the Levator Labii ſuperioris et Alæ Naſi; it ſpreads into a number of thin ſcattered Fibres, which croſs the Wing, and run towards the Dorſum of the Noſe, where it joins its fellow.

*Inſertion:* Into the anterior extremity of the Naſal Bones, and to the Slip which deſcends from the Frontal Muſcle.

*Action:* To preſs the Ala towards the Septum, as in ſmelling; or if the Fibres of the Frontal Muſcle which are connected to it act, they pull the Ala outwards. It alſo corrugates the Skin of the Noſe, and aſſiſts in expreſſing certain paſſions.

### Levator Labii Superioris et Alæ Nasi.

*Origin:* By two thin Fleſhy Slips; the firſt from the external part of the Orbitar Proceſs, and the ſecond from the upper part of the Naſal Proceſs of the Superior Maxillary Bone.

*Inſertion* of the firſt part of the Muſcle into the Upper Lip, and of the ſecond into the Upper Lip and Wing of the Noſe.

*Action:* To raiſe the Upper Lip, in opening the Mouth, and to dilate the Noſtril.

### Depressor Labii Superioris et Alæ Nasi.

*Origin:* Thin and Fleſhy, from the Alveoli of the Dentes Inciſivi and Caninus of the Upper Jaw, and running upwards, at the ſide of the furrow of the Lip, it has its

*Inſertion* in the Upper Lip, and root of the Ala Naſi.

*Action:* To draw the Upper Lip and Ala Naſi downwards.

### Levator Anguli Oris,

Or *Levator Labiorum Communis*, or *Caninus*.

*Origin:* Thin and Fleſhy, from the ſuperior Maxillary Bone, immediately under the Foramen Infra-Orbitarium, and running down deeper and farther out than the Levator Labii Superioris, it has its

*Inſertion* into the angle of the Mouth, where it joins with its antagoniſt.

*Action:* To raiſe the corner of the Mouth,—as in expreſſing the chearful paſſions.

### Depressor Labii Inferioris, or *Quadratus Genæ*.

*Origin:* Broad and Fleſhy, from the under part of the Lower Jaw, at the ſide of the Chin;—from thence it runs obliquely upwards and inwards, till it become contiguous to its fellow in the middle of the Lip.

*Inſertion:* Into one half of the edge of the Under Lip.

*Action:* To aſſiſt in opening the Mouth, by depreſſing the Under Lip, and pulling it a little outwards.

### Levator Labii Inferioris, or *Levator Menti*.

*Origin:* From the roots of the Alveoli of the Dentes Inciſores and Caninus of the Lower Jaw.

*Inſertion:*

*Insertion:* Into the Under Lip, and Skin of the Chin.
*Action:* To raise the parts into which it is inserted.

Depressor Anguli Oris, or *Musculus Triangularis.*

*Origin:* Broad and Fleshy, from the under edge of the Lower Jaw, at the side of the Chin.—It runs over the origin of the Depressor Labii Inferioris; and becoming gradually narrower, has its

*Insertion* into the angle of the Mouth, and intermixes with the Levator Anguli Oris.

*Action:* To depress the corner of the Mouth,—as in expressing the angry passions.

Zygomaticus Major.

*Origin:* Fleshy, from the Os Malæ, near the Zygomatic Suture; and descending obliquely forward, it has its

*Insertion* into the angle of the Mouth, its Fibres intermixing with those of the Depressor Anguli Oris, and Orbicularis Oris.

Zygomaticus Minor.

*Origin:* Higher on the Os Malæ than the former Muscle. It takes the same course, but is much more slender, and lies before it.

*Insertion:* Into the Upper Lip, along with the Levator Anguli Oris.

*Action:* To raise the corner of the Mouth, and draw it obliquely outwards.

This Muscle is often awanting.

By the frequent action of the Zygomatic Muscles, that Furrow is formed which extends between the outer corners of the Nose and Mouth, and which is so conspicuous in the Face of a person advanced in life.

Buccinator,

Or, *Trumpeter*, or *Retractor Anguli Oris.*

*Origin:* From a Ridge of the Lower Jaw, extending between the last Dens Molaris and Coronoid Process of the Lower Jaw;—also from the Upper Jaw, between the last Dens Molaris and Pterygoid Process of the Sphenoid Bone. From thence going forwards with straight Fibres, and adhering closely to the Membrane which lines the Mouth, it has its

*Insertion*

*Infertion* into the corner of the Mouth, with the Orbicularis Oris.

*Action:* To draw the angle of the Mouth backwards and outwards, and to contract its Cavity by preffing the Cheek inwards, by which the Food is thruft between the Teeth in the time of manducation.—It is likewife active in blowing wind-inftruments,—as a Trumpet,—from which it has obtained its name.

Orbicularis Oris, or *Sphincter Labiorum,*

Is a complete Sphincter furrounding the Mouth, and compofing the principal part of the Lips, and in a great meafure formed by the Mufcles which terminate in it.—At the corners of the Mouth, the Fibres decuffate each other, fo as to make it refemble two femicircular Mufcles, from which it has been named by fome, *Semi-Orbicularis Superior,* and *Semi-Orbicularis Inferior.*

*Action:* To fhut the Mouth, and to counteract the different Mufcles inferted into it.

*Nafalis Labii Superioris* of Albinus, may be confidered as part of the former Mufcle, running up to be connected to the Septum Nafi, and ferving as a Levator of the Upper Lip, or a Depreffor of the under part of the Nofe.

## MUSCLES of the LOWER JAW.

### Aponeurosis Temporalis.

Previous to the defcription of the Temporal Mufcle, it is neceffary to take notice of a ftrong Tendinous Membrane, which arifes from the Bones which give origin to the upper femicircular part of the Mufcle, and defcending over it, is fixed to the Zygoma.—It gives origin to part of the Temporal Mufcle, and braces it in its action.

### Temporalis.

*Origin:* In a femicircular manner, Flefhy, from the lower half of the Parietal and Temporal Foffa of the Frontal Bones; from the Squamous part of the Temporal, and Temporal Plate of the Sphenoid Bones.—It arifes likewife from the Aponeurofis which covers it:

From

From theſe different origins the Fibres deſcend like Radii, and the Muſcle changes into a ſtrong Tendon, which paſſes under the Jugum, to have its

*Inſertion* into the whole of the Coronoid Proceſs of the Lower Jaw, which it incloſes as in a ſheath.

*Action:* To pull the Lower Jaw upwards and backwards againſt the Upper Jaw,—and thereby it becomes uſeful in biting, chewing, &c.

### Masseter.

*Origin:* By ſtrong Tendinous and Fleſhy Fibres from the ſuperior Maxillary Bone, where it joins the Os Malæ, and from the whole length of the under and inner edge of the Zygoma,—the outer part of the Muſcle ſlanting backwards, the inner part forwards, and in ſome meaſure decuſſating the other. In its deſcent, it covers and conceals the Coronoid Proceſs and under end of the Temporal Muſcle, and has its

*Inſertion* into the angle of the Lower Jaw, and from that upwards, to the outſide of the Coronoid Proceſs.

*Action:* To raiſe the Lower Jaw.

### Pterygoideus Internus, or *Major*.

*Origin:* From the Foſſa Pterygoidea of the Sphenoid and Palate Bones: It paſſes downwards and outwards, and has its

*Inſertion* into the Cervix and Capſular Ligament of the Lower Jaw, and it is continued as far as the Groove for the inferior Maxillary Nerve.

*Action:* To raiſe the Jaw, and draw it obliquely towards the oppoſite ſide.

### Pterygoideus Externus, or *Minor*.

*Origin:* From the outer ſide of the Pterygoid Proceſs of the Sphenoid Bone; from the Tuberoſity of the ſuperior Maxillary Bone, and from the root of the Temporal Proceſs of the Sphenoid Bone. From theſe origins it paſſes, almoſt horizontally, outwards and a little backwards.

*Inſertion:* Into the Cervix and Capſular Ligament of the Lower Jaw.

*Action:* To pull the Lower Jaw to the oppoſite ſide, and, if both Muſcles act, to bring it forwards, ſo as to make

make the Fore-Teeth project beyond thofe of the Upper Jaw. The Mufcle, in its different motions, acts alfo upon the Interarticular Cartilage.

## MUSCLES ON THE FORE AND LATERAL PART OF THE NECK.

### Platysma Myoides.

*Origin:* By a number of feparate Flefhy Slips, from the Cellular Subftance, which covers the upper parts of the Pectoral and Deltoid Mufcles.—In their afcent, they unite to form a thin Mufcular expanfion, fimilar to the Cutaneous Mufcle of Quadrupeds, which runs obliquely upwards along the fide of the Neck, adhering to the Skin.

*Infertion:* Into the fide of the Lower Jaw,—the Depreffor Anguli Oris,—and into the Skin which covers the under part of the Mafleter Mufcle and Parotid Gland.

*Action:* To affift in depreffing the Skin of the Cheek, the corner of the Mouth, and the Lower Jaw, and, when the Jaws are fhut, to raife all that part of the Skin connected with it under the Lower Jaw.

### Sterno-Cleido Mastoideus, or *Sterno-Maftoideus.*

*Origin:* From the top of the Sternum, and from the anterior end of the Clavicle, by two diftinct heads. A little above the Clavicle, thefe unite to form a ftrong Mufcle, which runs obliquely upwards and outwards, the greater part of it being covered by the Cutaneous Mufcle.

*Infertion:* By a thick ftrong Tendon, into the Maftoid Procefs, which it furrounds; and becoming thinner, the infertion extends as far as the Lambdoid Suture.

*Action:* To turn the head to one fide, and affift in rolling it. When both Mufcles act, they bow the Head.

## MUSCLES SITUATED BETWEEN THE OS HYOIDES AND TRUNK.

### STERNO-HYOIDEUS.

*Origin:* From the upper and inner part of the Sternum, and from the adjacent parts of the Clavicle and Cartilage of the firſt Rib; it aſcends upon the fore-part of the Trachea and following Muſcle, to have its

*Inſertion* into the Baſe of the Os Hyoides.

*Action:* To depreſs the Os Hyoides.

### STERNO-THYROIDEUS.

*Origin:* From the upper and inner part of the Sternum, and partly from the Cartilage of the firſt Rib;—it runs along the fore-part and ſide of the Trachea and Thyroid Gland, and has its

*Inſerion* into the under and lateral part of the Thyroid Cartilage.

*Action:* To draw the Larynx downwards.

### THYRO-HYOIDEUS, or *Hyo-Thyroideus.*

*Origin:* Where the former Muſcle terminates, having the appearance of being continued from it.

*Inſertion:* Into part of the Baſe, and almoſt all the Cornu of the Os Hyoides.

*Action:* To depreſs the Os Hyoides, or to raiſe the Thyroid Cartilage.

### OMO-HYOIDEUS.

*Origin:* From the ſuperior Coſta of the Scapula, near the ſemilunar Notch; it goes obliquely upwards and forwards, and is of a very ſlender form. Under the Sterno-Maſtoideus, it becomes Tendinous, and again growing Fleſhy, has its

*Inſertion* into the Baſe of the Os Hyoides, at the ſide of the Sterno-Hyoideus.

*Action:* To depreſs the Os Hyoides, and pull it to one ſide; or when both act, to draw it directly down.

## MUSCLES situated between the LOWER JAW and OS HYOIDES.

### Digastricus, or *Biventer Maxillæ Inferioris.*

*Origin:* By its poſterior Belly, from the Groove at the root of the Maſtoid Proceſs of the Temporal Bone, it runs downwards and forwards, and forms a ſtrong round Tendon, which paſſes through the Stylo-Hyoideus Muſcle; it is then fixed by a Ligament to the Os Hyoides, and, having received an addition of Tendinous and Muſcular Fibres, runs obliquely upwards and forwards, forming another Fleſhy Belly, which has its

*Inſertion* into a rough ſinuoſity at the under part of the Symphyſis of the Lower Jaw.

*Action:* To open the Mouth by pulling the Lower Jaw downwards and backwards; and, when the Jaws are ſhut, to raiſe the Os Hyoides, and of conſequence the Throat,—as in ſwallowing.

### Mylo-Hyoideus.

*Origin:* Fleſhy, broad, and thin, from the inſide of the Lower Jaw, between the laſt Dens Molaris and the middle of the Chin, where it joins its fellow. It runs down behind the Digaſtricus, and has its

*Inſertion* into the Body of the Os Hyoides, and joined to its fellow by the intervention of a white Tendinous line.

*Action:* To pull the Os Hyoides forwards, upwards, and to a ſide.

### Genio-Hyoideus.

*Origin:* From a Tubercle on the under and inner part of the Symphyſis of the Lower Jaw, by a ſlender beginning, which by degrees becomes broader, and running down, has its

*Inſertion* into the body of the Os Hyoides, under the former Muſcle.

*Action:* To draw the Os Hyoides towards the Chin, when the Jaws are ſhut; or the Chin towards the Os Hyoides, when the latter is fixed by the Muſcles coming from the Sternum.

### Genio-Hyo-Glossus.

*Origin:* From the ſame Tubercle with the former Muſcle: Its Fibres, ſpread out like a Fan, and have their

*Inſertion* into the whole length of the Tongue, and Baſe of the Os Hyoides.

*Action:* According to the direction of its Fibres,—to draw the Tongue forwards, backwards, and downwards, and to make the Os Hyoides advance towards the Chin.

### Hyo-Glossus.

*Origin:* From the whole length of one half of the Os Hyoides: It runs upwards, and has its

*Inſertion* into the ſide of the Tongue, near the Stylo-Gloſſus.

*Action:* To depreſs the edges of the Tongue, and thereby to render its upper Surface convex.

### Lingualis.

*Origin:* From the root of the Tongue laterally; it advances between the Genio-Hyo-Gloſſus and Hyo-Gloſſus, and has its

*Inſertion* into the tip of the Tongue.

*Action:* To raiſe the point of the Tongue; to contract its ſubſtance, and bring it backwards.

### Crico-Thyroideus.

*Origin:* From the ſide and fore-part of the Cricoid Cartilage; it runs obliquely upwards, and has its

*Inſertion* by two portions; the one into the under part of the Thyroid Cartilage, the other into its inferior cornu.

*Action:* To depreſs and pull forwards the Thyroid Cartilage, or to raiſe and draw backwards the Cricoid Cartilage.

### Stylo-Glossus.

*Origin:* From the Styloid Proceſs of the Temporal Bone, and from a Ligament which connects that Proceſs to the angle of the Lower Jaw;—goes downwards and forwards,—of a ſlender form,—to have its

*Inſertion* into the root of the Tongue, near the Hyo-Gloſſus: It runs along its ſide, and is inſenſibly loſt near its tip.

*Action:* To draw the Tongue backwards, and to one ſide.

### Stylo-Hyoideus.

*Origin:* From the under half of the Styloid Proceſs; it goes downwards and forwards, and, after ſplitting for the Paſſage of the Digaſtric Muſcle, has its

*Inſertion* into the Os Hyoides, at the junction of the Baſe and Cornu.

*Action:* To pull the Os Hyoides to one ſide, and a little upwards.

### Stylo-Hyoideus Alter.

When preſent, it is a more ſlender Muſcle than the former, but, like it, has the ſame Origin, Inſertion, and Action.

### Stylo-Pharyngeus.

*Origin:* From the root of the Styloid Proceſs; it goes downwards and forwards, to have its

*Inſertion* into the ſide of the Pharynx, along which it expands.—It is alſo fixed to the back-part of the Thyroid Cartilage.

*Action:* To dilate and raiſe the Pharynx, and thereby prepare it to receive the morſel from the Mouth.—It at the ſame time lifts the Thyroid Cartilage.

### Circumflexus, or *Tenſor* Palati.

*Origin:* From the Spinous Proceſs of the Sphenoid Bone, and from the oſſeous part of the Euſtachian Tube. It runs along the Pterygoideus Internus, paſſes over the Hook of the Internal Plate of the Pterygoid Proceſs, and plays on it by a round Tendon, as on a Pulley, and, ſpreading out into a broad Membrane, has its

*Inſertion* into the Velum Palati, and ſemilunar edge of the Os Palati, extending as far as the Suture which joins the two Bones: Generally ſome of its poſterior Fibres join the Conſtrictor Pharyngis Superior, and Palato-Pharyngeus.

*Action:* To ſtretch the Velum, to draw it downwards, and to a ſide towards the Hook.

### Levator Palati, or *Levator Palati Mollis.*

*Origin:* From the point of the Pars Petroſa of the Temporal

Temporal Bone, and alſo from the Euſtachian Tube ;—from theſe parts it deſcends, and has its

*Inſertion*, by a broad expanſion, into the Velum Palati, extending as far as the root of the Uvula, and uniting with its fellow.

*Action :* To raiſe the Velum in the time of ſwallowing, and preſs it againſt the Noſe, ſo as to prevent the food or drink from paſſing there.

### Constrictor Isthmi Faucium.

*Origin :* From the ſide of the root of the Tongue : It runs in the doubling of the Skin, which forms the anterior Arch of the Palate.

*Inſertion :* Into the middle of the Velum Palati, at the root of the Uvula, where it is connected with its fellow.

*Action :* It draws the Palate and Root of the Tongue towards each other, and thereby ſhuts the opening into the Fauces.

### Palato-Pharyngeus.

*Origin :* From the middle of the Velum Palati, at the root of the Uvula, and from the inſertion of the Conſtrictor Iſthmi Faucium and Circumflexus Palati. The Fibres proceed within the poſterior Arch of the Palate, and run to the upper and lateral part of the Pharynx, where they ſpread, and mix with thoſe of the Stylo-Pharyngeus.

*Inſertion* : Into the edge of the upper and back-part of the Thyroid Cartilage, ſome of its Fibres being loſt between the Membrane and inferior Conſtrictors of the Pharynx.

*Action :* It draws the Velum and Uvula downwards, the Larynx and Pharynx being at the ſame time raiſed. Along with the Conſtrictor Superior and Tongue, it aſſiſts in ſhutting the paſſage into the Noſtrils, and, in ſwallowing, it conveys the food from the Fauces into the Pharynx.

### Salpingo-Pharyngeus of Albinus,

Is *compoſed* of a ſmall portion of the former Muſcle, which ariſes from the Euſtachian Tube, and which, when acting, may affect it.

### Azygos Uvulæ.

*Origin:* From the poſterior extremity of the longitudinal Palate Suture: It runs in the middle of the Velum Palati, and goes through the whole length of the Uvula, adhering in its paſſage to the Circumflexi Muſcles.

*Inſertion:* Into the point of the Uvula.

*Action:* To ſhorten the Uvula.

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## MUSCLES situated upon the BACK-PART of the PHARYNX.

### Constrictor Pharyngis Inferior.

*Origin:* From the ſides of the Thyroid and Cricoid Cartilages: The ſuperior Fibres, running obliquely upwards, cover the under part of the following Muſcle, and terminate in a point; the inferior Fibres run more tranſverſely, and cover the beginning of the Eſophagus.

*Inſertion:* Into its fellow, by the medium of a longitudinal Tendinous line in the middle of the back-part of the Pharynx.

*Action:* To compreſs the lower part of the Pharynx.

### Constrictor Pharyngis Medius.

*Origin:* From the Appendix and Cornu of the Os Hyoides, and alſo from the Ligament which connects the Cornu to the Thyroid Cartilage. The Muſcle, in its paſſage, ſpreads out, and terminates in a point above and below, the upper part covering the following Muſcle.

*Inſertion:* Into the Cuneiform Proceſs of the Occipital Bone, before the Foramen Magnum, and to its fellow on the oppoſite ſide by a Tendinous line, ſimilar to the former Muſcle.

*Action:* To compreſs the middle and upper part of the Pharynx.

### Constrictor Pharyngis Superior.

*Origin:* From the Cuneiform Proceſs of the Occipital Bone, before the Foramen Magnum; from the Pterygoid Proceſs of the Sphenoid Bone, and from both Jaws, near the laſt Dentes Molares: It is likewiſe connected

with

with the Buccinator Mufcle, and with the root of the Tongue and Palate.—From thefe Origins, it runs almoft horizontally, and has its

*Infertion* into its fellow, by the intervention of a Tendinous line, as in the cafe of the former Mufcle.

*Action:* To comprefs the upper part of the Pharynx, and, with the affiftance of the other Conftrictors, to thruft the Food down to the Efophagus.

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## MUSCLES OF THE GLOTTIS.

### Crico-Arytenoideus Posticus.

*Origin:* Broad and Flefhy, from the back-part of the Cricoid Cartilage.

*Infertion:* By a narrow extremity into the back-part of the Bafe of the Arytenoid Cartilage.

*Action:* To pull back the Arytenoid Cartilage, by which the Ligament of the Glottis is made tenfe, and the Glottis itfelf longer.

### Crico-Arytenoideus Lateralis.

*Origin:* From the fide of the Cricoid Cartilage, where it is covered by the Thyroid.

*Infertion:* Into the fide of the Bafe of the Arytenoid Cartilage.

*Action:* To open the Glottis, by feparating the Arytenoid Cartilages, and, with them, the Ligaments of the Glottis.

### Thyro-Arytenoideus.

*Origin:* From the under and back-part of the middle of the Thyroid Cartilage, from which it runs backwards and a little upwards, upon the fide of the Glottis and Ventricle of the Larynx.

*Infertion:* Into the fore-part of the Arytenoid Cartilage.

*Action:* It pulls the Arytenoid Cartilage outwards and forwards, and fo widens the Glottis, and relaxes its Ligaments.—It may alfo affect the Ventricle of the Larynx.

### Arytenoideus Obliquus, or *Minor*.

*Origin:* From the root of one of the Arytenoid Cartilages; croffing its fellow obliquely, it has its

 *Infertion*

*Infertion* near the point of the other Arytenoid Cartilage.

*Action:* To draw the Arytenoid Cartilages towards each other, and affift in clofing the Aperture of the Glottis.

*N.B.* Frequently one of the oblique Arytenoid Mufcles is awanting.

### Arytenoideus Transversus, or *Major.*

*Origin:* From almoft the whole length of the back-part of one of the Arytenoid Cartilages: It goes acrofs, to have its

*Infertion,* in a fimilar manner, in the other Arytenoid Cartilage.

*Action:* To clofe the Glottis, by drawing the Arytenoid Cartilages and Ligaments of the Glottis together.

### Thyro-Epiglottideus.

*Origin:* By a few fcattered Fibres, from the Thyroid Cartilage.

*Infertion:* Into the fide of the Epiglottis.

*Action:* To affift its fellow in drawing the Epiglottis towards the Glottis.

### Aryteno-Epiglottideus.

*Origin:* By a number of fmall Fibres, from the Arytenoid Cartilage: It runs along the outer fide of the external opening of the Glottis.

*Infertion:* Into the Epiglottis, along with the former Mufcle.

*Action:* To affift its fellow in drawing the Epiglottis immediately down upon the Glottis.

It is counteracted by the elafticity of the Epiglottis.

N.B. *The two laft-mentioned Mufcles are obfcurely feen, excepting in robuft Bodies.*

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## MUSCLES situated on the ANTERIOR and LATERAL PARTS of the ABDOMEN.

### Obliquus Descendens Externus,

### Or *Obliquus Externus Abdominis.*

*Origin:* In a ferrated manner, from the lower edge of the eight inferior Ribs, near their Cartilages. The

Serræ

Serræ intermix with the indentations of the Serratus Major Anticus, and it is commonly connected with the Pectoralis Major, Intercostales, and Latissimus Dorsi, the last of which covers the edge of a portion of it, extending from the twelfth Rib to the Spine of the Os Ilium.—From these Origins the Fibres run obliquely downwards and forwards, and terminate in an Aponeurosis, which, near its margin, is firmly connected with the Aponeurosis of the following Muscle, where it forms a curved line, called *Linea Semilunaris*. From this the Fibres are continued in the same direction with the Fleshy Fibres, to the middle of the Abdomen.

*Insertion:* Into its fellow of the opposite side, by the medium of the *Linea Alba*, which extends from the Cartilago-Ensiformis to the Pubes, is formed by the meeting of the Tendons of the oblique and transverse Muscles of the Abdomen, and is perforated in the middle by the Umbilicus,—originally a passage for the Umbilical Cord, now formed into a Cicatrix.

The under part of the Tendon divides into two columns, which leave an oval space between them, called *Ring* of the External oblique Muscle, for the passage of the Spermatic Cord in the Male, in whom it is larger than in the Female, where it gives passage to the round Ligament of the Uterus.

The Muscle is also inserted into the anterior half of the Spine of the Os Ilium, from the superior anterior Spinous Process of which it is stretched, Tendinous, to the Crest of the Os Pubis. This part of the Tendon, which passes over the Flexor Muscles and the great Blood-Vessels of the Thigh, is termed *Poupart's* or *Fallopius's Ligament*, or *The Inguinal Ligament.*

From the under part of this Tendon, a thin expansion is sent downwards, and is lost in the Aponeurosis of the Thigh.

• *Action:* To support and compress the Abdominal Viscera, assist the Evacuations, draw down the Ribs, and bend the Trunk forwards, or obliquely to one side.

### Obliquus Ascendens Internus,

Or *Obliquus Internus Abdominis.*

*Origin:* From the back-part of the Os Sacrum;—from the Spinous Processes of the three lowest Lumbar Vertebræ, by a Tendon common to it and the Serratus Posticus Inferior;

Inferior;—from the whole length of the Spine of the Os Ilium;—and from the inside of Poupart's Ligament, at the middle of which it sends off the Cremaster Muscle.—From these Origins the Fibres are disposed in a radiated manner; but the greater part of them run in a slanting direction upwards. At the Linea Semilunaris, the Muscle becomes Tendinous, and adheres firmly to the Tendon of the Obliquus Externus: Here its tendon divides into two Layers. The anterior Layer, with the greater part of the inferior portion of the posterior Layer, joins the Tendon of the external oblique, and goes over the Rectus Muscle, to be inserted into the whole length of the Linea Alba. The posterior Layer joins the Tendon of the Transversalis, and goes behind the Rectus; and this union is continued down, till it reaches about half-way between the Umbilicus and Os Pubis. Lower than this, only a few scattered Fibres of the posterior Layer are to be found behind the Rectus, the principal part of it passing before that Muscle, to be inserted into the Linea Alba.

*Insertion* of the Muscle in general: Into the Cartilages of all the False Ribs, the Cartilago-Ensiformis, and whole length of the Linea Alba.

*Action:* To assist the former Muscle. But it bends the Body in the same direction with the Obliquus Externus of the opposite side.

TRANSVERSALIS, or *Transversus Abdominis.*

*Origin:* Fleshy, from the inner Surface of the Cartilages of the six or seven lower Ribs, where it intermixes with the digitations of the Diaphragm, and with the Intercostal Muscles; from the Transverse Processes of the twelfth Dorsal and four superior Lumbar Vertebræ;—from the whole inner edge of the Spine of the Os Ilium; and anterior to this, it is connected to the under Edge of the external oblique Muscle. At the Linea Alba, the Muscle becomes Tendinous, and the Tendon is continued across, adhering to the internal oblique Muscle, in the manner already mentioned.—In the whole of its course, it is closely connected to the Surface of the Peritoneum.

*Insertion:* Into the Cartilago-Ensiformis, and Linea Alba.

*Action:* To support, and immediately compress the Abdominal Bowels.

### Rectus Abdominis.

*Origin:* Tendinous from the fore and upper part of the Symphyſis of the Oſſa Pubis;—it ſoon becomes Fleſhy, and runs upwards in form of a flat band, the whole length of, and parallel to, the Linea Alba.

In its courſe it is divided by three Tendinous interſections, at and above the Umbilicus; and there is generally a half-interſection below it.

Theſe ſeldom penetrate through the whole thickneſs of its ſubſtance; they adhere firmly to the anterior part of the ſheath which incloſes the Muſcle, but ſlightly to the poſterior Layer.

*Inſertion:* Into the Cartilages of the three inferior True Ribs and extremity of the Sternum; it frequently intermixes with the under edge of the large Pectoral Muſcle.

*Action:* To compreſs the fore-part of the Abdomen, to draw down the Ribs in expiration, and to bend the Body forwards, or to raiſe the Pelvis. By means of its Sheath and Tendinous interſections, it is kept in its place, and allowed to act more equally.

### Pyramidalis.

*Origin:* By a broad Baſe, from the upper part of the Symphyſis of the Oſſa Pubis:—It runs upwards within the ſame Sheath with the Rectus, and tapering to a point in its aſcent, it has its

*Inſertion* between the Pubis and Umbilicus in the Linea Alba and inner edge of the Rectus Muſcle.

*Action:* To aſſiſt the under part of the Rectus in drawing down the Ribs, or in compreſſing the under part of the Abdomen.

It is frequently awanting in both ſides, and then the under end of the Rectus is larger, as if to ſupply its place.

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## MUSCLES of the MALE PARTS OF GENERATION and ANUS.

### Cremaster.

*Origin:* From the under edge of the internal oblique Muſcle of the Abdomen: Paſſing through the Ring of the

the external oblique, it ſurrounds the Spermatic Cord as far as the Teſticle; there the Fibres ſeparate and expand, and have their

*Inſertion* into the Tunica Vaginalis Teſtis, and Cellular ſubſtance of the Scrotum.

*Action:* To ſuſpend and elevate, and to compreſs and evacuate the Teſticle.

ERECTOR PENIS, or *Iſchio-Cavernoſus.*

*Origin:* Tendinous, from the inner ſide of the Tuberoſity of the Os Iſchium;—it runs upwards, Fleſhy, increaſing in breadth, and embracing the whole Crus of the Penis.

*Inſertion:* By a thin Tendon, into the elaſtic Membrane which covers the Corpora Cavernoſa Penis, as far up as the union of the Crura.

*Action:* To compreſs the Crus Penis, and puſh the Blood from it into the fore-part of the Corpora Cavernoſa, in the time of its diſtention. It is likewiſe ſuppoſed by ſome to give a proper direction to the Penis.

ACCELERATOR URINÆ, or *Ejaculator Seminis.*

*Origin:* Fleſhy, from the Sphincter Ani, and membranous part of the Urethra, and Tendinous, from the Crus and beginning of the Corpus Cavernoſum Penis.—In its courſe, it forms a thin Fleſhy Layer, the inferior Fibres of which run more tranſverſely than the ſuperior, which deſcend in an oblique direction, the Muſcles on the oppoſite ſides completely incloſing the Bulb of the Urethra.

*Inſertion:* Into its fellow, by a Tendinous line running longitudinally on the middle of the Bulb.

*Action:* To propel the Urine or Semen forwards; and by compreſſing the Bulb, to puſh the Blood into, and thereby diſtend the Corpus Cavernoſum Urethræ, and Glans of the Penis.

TRANSVERSUS PERINEI, or *Tranſverſalis Urethræ.*

*Origin:* From the inſide of the tuberoſity of the Os Iſchium, cloſe to the Erector Penis; running acroſs, it has its

*Inſertion* into the back-part of the Accelerator Urinæ, and adjoining part of the Sphincter Ani.

*Action:*

*Action:* To dilate the Bulb for the reception of the Semen or Urine; or it may alſo aſſiſt the Levator Ani in retracting the Anus, after the diſcharge of the Fœces.

There is frequently another Muſcle, termed *Tranſverſalis Perinei Alter*, running along with the former, and having the ſame Origin, Inſertion, and Action, but going more obliquely upwards.

### Sphincter Ani.

*Origin:* From the extremity of the Os Coccygis. It runs forwards within the ſkin and fat which cover the verge of the Anus, and in its paſſage forms a broad, flat, oval Muſcle, which ſurrounds the extremity of the Inteſtinum Rectum.

*Inſertion:* By a narrow point, into the Acceleratores Urinæ and Tranſverſi Perinei.

*Action:* To ſhut the Anus, and alſo to pull down the Bulb of the Urethra, by which it may aſſiſt in throwing out the Urine and Semen.

The *Sphincter Internus* of ſome authors, is merely the circular Muſcular Coat of the end of the Rectum.

### Levator Ani.

*Origin:* By a ſemicircular edge, from the Os Pubis, within the Pelvis, at the upper edge of the Foramen Thyroideum; from the Aponeuroſis which covers the Obturator Internus and Coccygeus Muſcles; and from the Spinous Proceſs of the Os Iſchium.—Its Fibres deſcend like rays from a circumference, to meet thoſe of its fellow, and with it, to form a kind of inverted funnel.

*Inſertion:* Into the Sphincter Ani, Accelerator Urinæ, and under and fore-part of the Os Coccygis.—It ſurrounds the extremity of the Rectum, neck of the Bladder, Proſtate Gland, and part of the Veſiculæ Seminales.

*Action:* To ſupport the contents of the Pelvis, to retract the end of the Rectum, after the evacuation of the Fœces, to aſſiſt in the evacuation of the Rectum and Bladder, of the Veſiculæ Seminales and Proſtate Gland.—It is likewiſe conſidered by ſome as a principal agent in the diſtention of the Penis, by preſſing upon its Veins.

## MUSCLES OF THE FEMALE PARTS OF GENERATION AND ANUS.

### ERECTOR CLITORIDIS.

The ſame as the Erector Penis in the Male, but ſmaller.

*Inſertion:* In the ſame manner, into the Crus and Body of the Clitoris.

### SPHINCTER VAGINÆ.

*Origin:* From the Sphincter Ani, and from the poſterior ſide of the Vagina, near the Perineum.—It paſſes along the outer end of the Vagina, covers the Corpus Cavernoſum Vaginæ, and, going behind the Nymphæ, it has its

*Inſertion* into the union of the Crura Clitoridis.

*Action:* To contract the external Orifice of the Vagina, by compreſſing its Corpus Cavernoſum, from which laſt it likewiſe puſhes the Blood into the Nymphæ and Clitoris.

### TRANSVERSUS PERINEI.

*Origin:* As in the Male.

*Inſertion:* Into the upper part of the Sphincter Ani, and into a tough white ſubſtance in the Perineum.

*Action:* Upon the Perineum and Anus, as in the Male.

### SPHINCTER ANI.

*Origin* and courſe, as in the Male.

*Inſertion:* Into the tough white ſubſtance in the Perineum.

*Action:* To ſhut the Anus, and, by pulling down the Perineum, to aſſiſt in contracting the external Orifice of the Vagina.

### LEVATOR ANI.

*Origin:* As in the Male. In its deſcent, it embraces the inferior part of the Vagina and Rectum.

*Inſertion:* Into the Perineum, Sphincter Ani, extremity of the Vagina, and Rectum.

*Action:* Upon the Bladder and Rectum, as in the Male. It alſo aſſiſts in ſupporting and contracting the Vagina, and may, by preſſing upon the Veins, contribute to the diſtenſion of the Cells of the Clitoris and Corpus Cavernoſum Vaginæ.

## MUSCLE OF THE OS COCCYGIS.

### Coccygeus.

*Origin:* By a narrow point, from the Spinous Procefs of the Os Ifchium.—In its paffage, it gradually expands, and covers the infide of the pofterior Sacro-Ifchiatic Ligament.

*Infertion:* Into the whole length of the fide of the Os Coccygis.

*Action:* To move the Os Coccygis forwards, by which it muft affift the Levator Ani in fupporting or raifing the end of the Rectum.

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## MUSCLES SITUATED WITHIN THE CAVITY OF THE ABDOMEN.

### Diaphragma.

The Diaphragm forms a Flefhy and Tendinous Partition, which feparates the Cavity of the Abdomen from that of the Thorax, and is perforated by feveral Holes, for the paffage of Veffels and Nerves which go into, or out from the Abdomen. It is concave below, and convex above, the middle of it reaching as high within the Thorax as the fourth pair of Ribs. Above, it is covered by the Pleura; and below, by the Peritoneum; and is commonly divided into two portions, called Superior and Inferior Mufcles of the Diaphragm.

### Superior, or *Greater* Muscle *of the* Diaphragm.

*Origin:* By Flefhy indentations, from the Cartilago Enfiformis, and from the Cartilages of the feventh, and of all the inferior Ribs on both fides. From thefe different origins, the Fibres run in a radiated manner, and have their

*Infertion* into a Cordiform Tendon, placed in the middle of the Diaphragm, and in which the Fibres of the oppofite fides are interlaced.—Towards the right fide, the Tendon is perforated by a triangular hole for the paffage of the Vena Cava Inferior; and to the upper convex part of it, the Pericardium and Mediaftinum are connected.

### Inferior, or Lesser Muscle, or *Appendix of the Diaphragm.*

*Origin:* By four pair of Heads, of which one pair in the middle, commonly called its Long, or Tendinous *Crura*, is the longeſt. The long Crura ariſe from the fore-part of the fourth Lumbar Vertebra, and adhere to the bodies of all the Vertebræ of the Loins above this, by the intervention of the common Ligament covering theſe Bones. In their aſcent, they leave an oval opening for the paſſage of the Aorta and Thoracic Duct. The other Heads ariſe from the third, and alſo from the ſecond Lumbar Vertebra, and are placed farther out. From the different Heads the Muſcular Fibres run upwards, and form, in the middle, two Fleſhy Columns, or Crura, which decuſſate, and leave an opening for the paſſage of the Eſophagus.

*Inſertion:* By ſtrong Fleſhy Fibres, into the poſterior edge of the Cordiform, or middle Tendon.

*Action:* To enlarge the Cavity of the Thorax in inſpiration, by its Fleſhy part contracting, and bringing its two ſides down from a convex to a plane Surface, the Abdominal Muſcles at the ſame time yielding, but the Tendinous part of the Diaphragm remaining nearly in the ſame ſituation. In expiration, the Diaphragm is replaced, chiefly by the action of the Abdominal Muſcles. It is the antagoniſt of the Abdominal Muſcles in Inſpiration, but acts in concert with them in dejection and vomiting.

### Quadratus Lumborum.

*Origin:* Broad, Tendinous, and Fleſhy, from the poſterior half of the Spine of the Os Ilium, and from a Ligament extended between it and the tranſverſe Proceſs of the laſt Lumbar Vertebra.

*Inſertion:* Into the tranſverſe Proceſſes of all the Lumbar Vertebræ; into the laſt Rib, near the Spine; and, by a ſmall Tendon, into the ſide of the laſt Dorſal Vertebra.

*Action:* To move the Loins to one ſide, pull down the laſt Rib, and, when both act, to bend the Loins forwards.

### Psoas Parvus.

*Origin:* Fleſhy, from the laſt Vertebra of the back, and one or two upper Vertebræ of the Loins. It ſends off a ſlender Tendon which runs down by the inner ſide of the Pſoas Magnus, and an Aponeuroſis which expands upon the neighbouring Muſcles.

*Inſertion:* Into the brim of the Pelvis, at the joining of the Os Ilium and Pubis.

*Action:* To aſſiſt in bending the Spine upon the Pelvis, or in raiſing the Pelvis.

This Muſcle is frequently awanting.

### Psoas Magnus.

*Origin:* From the ſide of the Bodies, and from the tranſverſe Proceſſes of the laſt Dorſal, and all the Lumbar Vertebræ, by an equal number of Fleſhy Slips, which, uniting, form a thick ſtrong Muſcle, bounding the upper part of the ſide of the Pelvis, and paſſing down over the Os Pubis, behind Poupart's Ligament.

*Inſertion:* Tendinous and Fleſhy, into the Trochanter Minor, and part of the Body of the Os Femoris.

*Action:* To bend the Thigh, and turn it a little outwards, or, when the Inferior Extremity is fixed, to aſſiſt in bending the Body.

### Iliacus Internus.

*Origin:* Fleſhy, from the tranſverſe Proceſs of the laſt Lumbar Vertebra; from all the inner edge of the Spine of the Os Ilium; from the edge of that Bone, between its anterior ſuperior Spinous Proceſs and the Acetabulum; and from moſt of the hollow part of the Os Ilium.—It joins the Pſoas Magnus, where it begins to become Tendinous on the Os Pubis.

*Inſertion:* Along with the Pſoas Magnus.

*Action:* To aſſiſt the Pſoas in bending the Thigh.

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## MUSCLES situated upon the ANTERIOR PART of the THORAX.

### Pectoralis Major, or *Pectoralis.*

*Origin:* From the Sternal half of the Clavicle; from the edge of the Sternum, where it is connected with its

 fellow;

fellow; and from the Cartilages of the fifth and sixth Ribs, where it mixes with the Obliquus Externus: The Fibres from thence converge towards the Axilla, where they decussate, and send off a flat twisted Tendon, which has its

*Insertion* into the Ridge at the outer edge of the Groove for lodging the Tendon of the long head of the Biceps.

*Action:* To draw the arm towards the Sternum.

### Pectoralis Minor.

Or *Serratus Minor Anticus.*

*Origin:* Tendinous and Fleshy, from the third, fourth, and fifth Ribs, near their Cartilages: Passing obliquely outwards, it becomes gradually narrower.

*Insertion:* Tendinous into the point of the Coracoid Process of the Scapula.

*Action:* To bring the Scapula downwards and forwards, or to raise the Ribs.

### Subclavius.

*Origin:* Tendinous, from the Cartilage of the first Rib. It soon becomes Fleshy, and runs outwards, under the Clavicle, increasing in breadth.

*Insertion:* Into the under Surface of the Clavicle, from near its head, as far outwards as the Coracoid Process of the Scapula.

*Action:* To pull the Clavicle, and with it the Scapula, downwards and forwards.

### Serratus Magnus,

Or *Serratus Major Anticus.*

*Origin:* From the nine superior Ribs, by an equal number of Fleshy digitations. It runs obliquely upwards and backwards upon the side of the Thorax, and between it and the Scapula.

*Insertion:* Fleshy, into the whole length of the Base of the Scapula, and in a manner folded round it, between the insertion of the Rhomboid and the Origin of the Subscapularis Muscles.

*Action:* To move the Scapula forwards or downwards, according to the direction of its different digitations, and, when the Scapula is forcibly raised, to assist in dilating the Thorax, by raising the Ribs.

## MUSCLES SITUATED BETWEEN THE RIBS, AND WITHIN THE THORAX.

### INTERCOSTALES EXTERNI.

*Origin:* From the under edge of each ſuperior Rib. They run obliquely downwards and forwards, from the Spine to the joining of the Ribs with their Cartilages, from which, to the Sternum, they are diſcontinued, that place being occupied by an Aponeuroſis.

*Inſertion:* Into the upper edge of each inferior Rib.

Portions of the External Intercoſtals, which ariſe from the tranſverſe Proceſſes of the Vertebræ, and terminate in the Ribs immediately below, are termed, by ALBINUS, *Levatores Coſtarum Breviores.*—Other portions, which ariſe in the ſame manner, but paſs over one Rib, and terminate in the next below it, are named, by the ſame Author, *Levatores Coſtarum Longiores.*

### INTERCOSTALES INTERNI.

*Origin:* The ſame with that of the External; but they begin at the Sternum, and run downwards and backwards, decuſſating the former Muſcles like the ſtrokes of the letter X, and continuing as far as the angle of the Ribs, from which to the Spine they are awanting.

*Inſertion:* In the ſame manner as the External.

Portions of the Internal Intercoſtals, near the under part of the Thorax, which paſs over one Rib, and terminate in the next below it, are called, by DOUGLAS, *Coſtarum Depreſſores Proprii.*

*Action* of the Internal, as well as of the External Intercoſtals:—To enlarge the Cavity of the Thorax, by elevating the Ribs in the time of inſpiration; and the obliquity of the one ſet balancing that of the other, allows them to be raiſed more immediately upwards.

• From the obliquity of their Fibres, they are found to poſſeſs a greater power to raiſe the Ribs, than Fibres going in a perpendicular direction.

The External Intercoſtals ceaſe near the Sternum, and the Internal near the Spine, to admit the ready motion of the Ribs; for, had the former been continued to the Sternum, and the latter to the Spine, the parts of theſe Muſcles ſuppoſed to be thus fixed, would of courſe have become antagoniſts to the reſt.

The portions called *Levatores* and *Depressores Castorum* assist in raising the Ribs, in the same manner as the rest of the Intercostales.

STERNO-COSTALIS, or *Triangularis Sterni.*

*Origin:* From the edges of the Cartilago Ensiformis, and lower half of the middle Bone of the Sternum, within the Thorax. It runs upwards and outwards, behind the Cartilages of the Ribs.

*Insertion:* Generally by three angular terminations, into the Cartilages of the third, fourth, and fifth Ribs, and sometimes, also, by a fourth termination into the Cartilage of the second or sixth Rib, near where they join the Osseous part of the Ribs.

*Action:* To depress the Ribs into which they are fixed, and, of consequence, assist in contracting the Cavity of the Thorax during Expiration.

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## MUSCLES SITUATED ON THE ANTERIOR PART OF THE VERTEBRÆ OF THE NECK.

LONGUS COLLI.

*Origin:* From the side of the Bodies of the three superior Vertebræ of the Back, and from the transverse Processes of the four inferior Vertebræ of the Neck.

*Insertion:* Into the fore-part of the bodies of all the Vertebræ of the Neck, by as many small Tendons, which are covered with Flesh.

*Action:* It bends the Neck forwards and to one side, or when both Muscles act, they immediately bend the Neck.

RECTUS CAPITIS ANTERIOR MAJOR,

Or *Rectus Anterior Longus.*

*Origin:* From the transverse Processes of the third, fourth, fifth, and sixth Vertebræ of the Neck. It runs upwards, and a little inwards, covering the outer edge of the Longus Colli.

*Insertion:*

*Insertion:* Into the Cuneiform Procefs of the Occipital Bone, near its joining with the Os Sphenoides.
*Action:* To bend the Head forward.

### Rectus Capitis Anterior Minor,

### Or *Rectus Anterior Minor.*

*Origin:* From the fore-part of the Atlas, oppofite to its fuperior Oblique Procefs. It runs obliquely inwards behind, and a little to the outfide of the former Mufcle.
*Insertion:* Into the Cuneiform Procefs of the Occipital Bone, immediately before the Condyles.
*Action:* To affift the Rectus Major.

### Rectus Capitis Lateralis.

*Origin:* From the anterior part of the tranfverfe Procefs of the Atlas.—It goes obliquely outwards.
*Insertion:* Into the Occipital Bone, immediately behind the Jugular Foffa.
*Action:* To incline the Head a little to one fide.

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## MUSCLES situated upon the POSTERIOR PART of the TRUNK.

### Trapezius, or *Cucullaris.*

*Origin:* From the middle of the great arched Ridge of the Occipital Bone; from its fellow, over the Spinous Proceffes of the Cervical Vertebræ, by the intervention of a ftrong Tendon, called *Ligamentum Nuchæ*, or *Colli;* from the Spinous Proceffes of the two inferior Vertebræ of the Neck; and from all thofe of the Back, adhering Tendinous to its fellow the whole length of its Origin.
*Insertion:* Into the Scapulary half of the Clavicle, into the Acromion, and into the Spine of the Scapula.
*Action:* To move the Clavicle and Scapula, according to the directions of its different Fibres. The fuperior Fibres, defcending, raife the Shoulder; the middle, running tranfverfely, pull it backwards; and the inferior Fibres, afcending, deprefs it. The whole acting together, bring it immediately back.—When the Scapula is fixed, the Mufcle muft affift in moving the Head backwards.

Latissimus

### Latissimus Dorsi.

*Origin:* By a broad Tendinous expanſion, from the poſterior part of the Spine of the Os Ilium; from all the Spinous Proceſſes of the Vertebræ, extending between the bottom of the Os Sacrum and ſixth Vertebra of the Back; and, by three or four Tendinous or Fleſhy Slips, from an equal number of inferior Ribs. The Tendon by degrees changes into a Muſcle of great breadth, the inferior Fibres of which run upwards and outwards, and the ſuperior run tranſverſely over the inferior angle of the Scapula, receiving a ſmall Slip from it in their way to the Axilla, where they are collected, twiſted, and folded, like thoſe of the Pectoral Muſcle.

*Inſertion:* By a ſtrong thin Tendon, into the inner edge of the Groove for lodging the Tendon of the long head of the Biceps Muſcle.

*Action:* To pull the Arm downwards and backwards, and to roll the Os Humeri inwards, by which the Palm of the hand is made to face backwards. When the large Pectoral Muſcle acts at the ſame time with this one, the Arm is brought immediately down towards the Trunk.

The Latiſſimus Dorſi and Pectoralis Major form the Arm-Pit, in which the great Veſſels and Nerves, and likewiſe the Glands lie, which belong to the Arm.

### Serratus Posticus Inferior.

*Origin:* By the ſame common Tendon with the Latiſſimus Dorſi, from the two inferior Vertebræ of the Back, and from the three ſuperior of the Loins.

*Inſertion:* By four Fleſhy Slips, into the ſame number of Ribs, near their Cartilages.

*Action:* To depreſs the Ribs into which it is inſerted, and thereby aſſiſt in contracting the Cavity of the Thorax in the time of Expiration.

### Rhomboideus.

*Origin:* Tendinous, from the Spinous Proceſſes of the four or five ſuperior Vertebræ of the Back;—from the three inferior of the Neck, and from the Ligamentum Nuchæ.—It deſcends obliquely, and has its

*Inſertion* into the whole length of the Baſe of the Scapula.

*Action:* To draw the Scapula upwards and backwards.

This

This Muſcle is frequently divided by an indiſtinct line into two unequal portions: The part ariſing from the Vertebræ of the Back, and fixed to the Baſe of the Scapula, under the Spine, is commonly called *Rhomboides Major*, and the other part of the Muſcle, *Rhomboides Minor*.

### Splenius.

*Origin:* Tendinous, from the four ſuperior Spinous Proceſſes of the Vertebræ of the Back;—Tendinous and Fleſhy, from the five inferior of the Neck: It adheres firmly to the Ligamentum Nuchæ. At the third Vertebra of the Neck, it recedes from its fellow, ſo that that part of the Complexus Muſcle is ſeen.

*Inſertion:* By as many Tendons, into the five ſuperior tranſverſe Proceſſes of the Vertebræ of the Neck; and Tendinous and Fleſhy, into the poſterior part of the Maſtoid Proceſs, and into the Os Occipitis, where it joins with that Proceſs.

*Action:* To antagonize the Sterno-Maſtoideus, by bringing the Head, and upper Vertebræ of the Neck, obliquely backwards and to one ſide. When the Splenii act together, they draw the Head directly backwards.

This Muſcle is divided by Albinus into *Splenius Capitis*, or that which ariſes from the Neck, and goes to the Head; and *Splenius Colli*, or that which ariſes from the Back, and is fixed to the Neck.

### Serratus Posticus Superior.

*Origin:* By a broad thin Tendon, from the Ligamentum Nuchæ, over the Spinous Proceſſes of the three laſt Vertebræ of the Neck, and from the two uppermoſt of the Back. It goes obliquely downwards.

*Inſertion:* By four Fleſhy Slips into the ſecond, third, fourth, and fifth Ribs, under the upper and back-part of the Scapula.

*Action:* To elevate the Ribs, and dilate the Thorax in inſpiration.

### Sacro-Lumbalis.

*Origin:* In common with the Longiſſimus Dorſi, Tendinous without, and Fleſhy within, from the ſide, and all the Spinous Proceſſes of the Os Sacrum; from the poſterior part of the Spine of the Os Ilium; from all the

Spinous

Spinous Proceſſes and Tranſverſe Proceſſes of the Vertebræ of the Loins. The common head fills up the ſpace between the Os Ilium and Os Sacrum, and alſo the hollow of the Loins. At the under part of the Thorax, the Muſcle begins to ſend off Tendons, which lie flat upon the Ribs, and become gradually longer the nearer they are to the Spine.

*Inſertion:* Into the angles of all the Ribs, by an equal number of Tendons.

From the ſixth or eighth lower Ribs ariſe an equal number of Fleſhy Portions, which terminate in the inner ſide of this Muſcle, and get the name of *Muſculi Acceſſorii*, or *Additamentum ad Sacro-Lumbalem.*

*Action:* To aſſiſt in raiſing and keeping the Trunk of the Body erect. It alſo aſſiſts the Serratus Inferior, and Quadratus Lumborum, in depreſſing the Ribs.

From the upper part of this Muſcle, a Fleſhy Slip called *Cervicalis Deſcendens*, runs up to be fixed to the tranſverſe Proceſſes of the fourth, fifth, and ſixth Vertebræ of the Neck, by three diſtinct Tendons. When it acts, it turns the Neck obliquely backwards and to one ſide.

### Longissimus Dorsi.

*Origin:* In common with the Sacro-Lumbalis. It forms a large, thick, and ſtrong Muſcle, which fills the hollow between the Spine and angles of the Ribs, and which, becoming gradually ſmaller in its aſcent, has its

*Inſertion* into all the tranſverſe Proceſſes of the Vertebræ of the Back, chiefly by ſmall double Tendons; and, by a Tendinous and Fleſhy Slip, into the lower edge of each of the Ribs, excepting the two inferior, near their Tubercles.

From the upper part of this Muſcle, a round Fleſhy Slip runs up to join the Cervicalis Deſcendens.

*Action:* To extend the Trunk, and keep it erect.

### Complexus.

*Origin:* By diſtinct Tendons, from the tranſverſe Proceſſes of the ſeven ſuperior Vertebræ of the Back, and four inferior of the Neck; and by a Fleſhy Slip, from the Spinous Proceſs of the firſt Vertebra of the Back. In its paſſage upwards, it is intermixed with Tendinous and Fleſhy parts.

*Insertion:* Into a depression, under the large arched Ridge of the Occipital Bone.

The long portion of this Muscle, which lies next the Spinous Processes, is more loose than the rest, and has a roundish Tendon in the middle of it, with a Fleshy Belly at each end, on which account it is called, by ALBINUS, *Biventer Cervicis.*

*Action:* To draw the Head backwards, and to one side; and when both act, to draw the Head directly backwards.

### TRACHELO-MASTOIDEUS;

It is likewise called *Complexus Minor*, or *Mastoideus Lateralis.*

*Origin:* From the transverse Processes of the three uppermost Vertebræ of the Back, and five lowest of the Neck, where it is connected to the *Transversalis Cervicis* by as many thin Tendons, which unite into a slender belly, and run up under the Splenius.

*Insertion:* Into the posterior margin of the Mastoid Process by a thin Tendon.

*Action:* To assist the Complexus; but it pulls the Head more to a side.

### LEVATOR SCAPULÆ,

Or *Levator Proprius*, or *Musculus Patientiæ.*

*Origin:* From the transverse Processes of the five superior Vertebræ of the Neck, by the same number of distinct heads, which soon unite to form a flat Muscle, which runs downwards and outwards.

*Insertion:* Into the superior angle of the Scapula.

*Action:* To pull the Scapula upwards and a little forwards, as in shrugging the shoulder; and, when the Scapula is fixed, the Muscle may act upon the Neck.

### SEMI-SPINALIS DORSI, or *Transverso-Spinalis Dorsi.*

*Origin:* From the transverse Processes of the seventh, eighth, ninth, and tenth Vertebræ of the Back, by as many distinct Tendons, which soon grow Fleshy, and then become Tendinous again.

*Insertion:* Into the Spinous Processes of the six or seven uppermost Vertebræ of the Back, and two lower of the Neck, by as many Tendons.

*Action:*

*Action:* To extend the Spine obliquely backwards.

## Multifidus Spinæ.

Formerly *Transverso-Spinalis Lumborum*, *Transverso-Spinalis Dorsi*, and *Transverso-Spinalis Colli.*

*Origin:* From the side, and Spinous Processes of the Os Sacrum, and from that part of the Os Ilium which joins with the Sacrum; from all the oblique and transverse Processes of the Vertebræ of the Loins; from all the transverse Processes of the Vertebræ of the Back, and of the four inferior of the Neck, by as many distinct Tendons, which soon become Fleshy, and run obliquely upwards and inwards.

*Insertion:* By distinct Tendons, into all the Spinous Processes of the Vertebræ of the Loins, Back, and Neck, excepting the Atlas.

*Action:* To extend the Spine obliquely, and pull it to a side. When both Muscles act, they draw the Spine directly backwards.

## Semi-Spinalis Colli, or *Transverso-Spinalis Colli.*

*Origin:* From the transverse Processes of the six uppermost Vertebræ of the Back, by as many distinct Tendons, which run obliquely under the Complexus.

*Insertion:* Into the Spinous Processes of all the Vertebræ of the Neck, except the first and last.

*Action:* To extend the Neck obliquely backwards and to a side.

## Transversalis Colli.

*Origin:* From the transverse Processes of the five uppermost Vertebræ of the Back, by the same number of Tendinous and Fleshy Slips: It runs between the Trachelo-Mastoideus, Splenius Colli, and Cervicalis Descendens.

*Insertion:* Into the transverse Processes of all the Cervical Vertebræ, except the first and last.

*Action:* To turn the Neck obliquely backwards, and a little to one side.

## Rectus Capitis Posticus Minor, or *Rectus Minor.*

*Origin:* Tendinous, close to its fellow, from a small Protuberance which is in place of the Spinous Process of the

the firſt Vertebra of the Neck. It ſpreads out in its aſcent, and has its

*Inſertion*, Fleſhy, in a depreſſion between the ſmaller Arch and Foramen Magnum of the Occipital Bone.

*Action*: To aſſiſt the following Muſcle in drawing the Head backwards.

RECTUS CAPITIS POSTICUS MAJOR, or *Rectus Major*.

*Origin*: Fleſhy, from the external part of the Spinous Proceſs of the ſecond Vertebra of the Neck. It becomes gradually broader, and goes obliquely upwards and outwards.

*Inſertion*: Tendinous and Fleſhy, into the Os Occipitis, at the outſide of the inſertion of the Rectus Minor, part of which it covers and conceals.

*Action*: To pull the Head backwards, and to aſſiſt a little in its rotation.

OBLIQUUS CAPITIS INFERIOR.

*Origin*: Fleſhy, from the Spinous Proceſs of the ſecond Vertebra of the Neck, at the outſide of the Rectus Major. It forms a thick belly, which runs upwards and outwards.

*Inſertion*: Into the tranſverſe Proceſs of the firſt Vertebra of the Neck.

*Action*: To roll the Head.

OBLIQUUS CAPITIS SUPERIOR.

*Origin*: From the tranſverſe Proceſs of the firſt Vertebra of the Neck. It paſſes upwards and a little inwards.

*Inſertion*: Into the Occipital Bone, at the outer part of the inſertion of the Rectus Major.

*Action*: To aſſiſt in drawing the Head backwards.

SCALENUS ANTICUS.

*Origin*: Tendinous and Fleſhy, from the upper part of the firſt Rib, near its Cartilage.

*Inſertion*: Into the tranſverſe Proceſſes of the fourth, fifth, and ſixth Vertebræ of the Neck, by as many Tendons.

## Scalenus Medius.

*Origin:* From the upper and outer part of the firft Rib, from its Root to near its Cartilage.

*Infertion:* Into the tranfverfe Proceffes of all the Vertebræ of the Neck, by as many ftrong Tendons.

The Subclavian Artery, and Nerves which form the Blachial Plexus, pafs between this and the former Mufcle.

## Scalenus Posticus.

*Origin:* From the upper edge of the fecond Rib, near the Spine.

*Infertion:* Into the tranfverfe Proceffes of the fifth and fixth Vertebræ of the Neck.

*Action of the three Scaleni:* To bend the Neck to one fide; or, when the Neck is fixed, to raife the Ribs, and dilate the Thorax.

## Interspinales Colli.

The fpaces between the Spinous Proceffes of the Vertebræ of the Neck, moft of which are forked, are occupied by double Flefhy Portions, which have their

*Origin* from each inferior Spinous Procefs, and their

*Infertion* into each fuperior.

*Action:* To draw thefe Proceffes nearer to each other, and of confequence the Neck a little backwards.

## Intertransversales Colli.

The fpaces between all the tranfverfe Proceffes of the Vertebræ of the Neck, which are alfo forked, are filled up in like manner with double Flefhy Portions.

*Action:* To draw thefe Proceffes towards each other, and turn the Neck a little to one fide.

## Interspinales and Intertransversales Dorsi,

Are rather fmall Tendons than Mufcles, ferving to connect the Spinal and tranfverfe Proceffes.

## * Spinalis Dorsi.

*Origin*: By five Tendinous Slips, from the Spinous Processes of the two upper Vertebræ of the Loins, and the three lower of the Back.—In its ascent, it is incorporated with the Longissimus Dorsi, and has its

*Insertion* into the Spinous Processes of the eight or nine uppermost Vertebræ of the Back, excepting the first, by as many Tendons.

*Action*: To fix the Vertebræ, and to assist in extending the Trunk and keeping it erect.

INTERSPINALES LUMBORUM.

Are of the ſame nature with the Interſpinales and Intertranſverſales Dorſi.

INTERTRANSVERSALES LUMBORUM,

Are five diſtinct Muſcles which occupy the ſpaces between the tranſverſe Proceſſes of the laſt Dorſal and all the Lumbar Vertebræ, and ſerve to draw them a little towards each other.

# MUSCLES

OF THE

# *SUPERIOR EXTREMITY.*

## MUSCLES ARISING FROM THE SCAPULA.

### SUPRA-SPINATUS.

*Origin:* Fleſhy, from all the Foſſa Supra-Spinata of the Scapula, and from the Spine and ſuperior Coſta. It paſſes under the Acromion, adhering to the Capſular Ligament of the Joint.

*Inſertion:* Tendinous, into the large Tubercle on the head of the Os Humeri.

*Action:* To raiſe the Arm, and at the ſame time to pull the Capſular Ligament from between the Bones, to prevent it from being pinched.

### INFRA-SPINATUS.

*Origin:* Fleſhy, from all that part of the Dorſum of the Scapula which is below its Spine; and from the Spine itſelf, as far as the Cervix of the Scapula. The Fibres run obliquely towards a Tendon in the middle of the Muſcle, which runs forwards, and adheres to the Capſular Ligament.

*Inſertion:* By a flat thick Tendon, into the upper and poſterior part of the large Protuberance on the head of the Os Humeri.

*Action:* To roll the Os Humeri outwards; to aſſiſt in raiſing, and in ſupporting it when raiſed; and to pull the Ligament from between the Bones.

Theſe two Muſcles are covered by an Aponeuroſis, from which many of their Fleſhy Fibres ariſe.

### TERES MINOR.

*Origin:* Fleſhy, from the inferior Coſta of the Scapula. It

It aſcends along the inferior edge of the Infra-Spinatus, adheres to the Capſular Ligament, and has its

*Inſertion*, Tendinous, into the back-part of the large Protuberance on the head of the Os Humeri, a little below the Infra-Spinatus.

*Action:* To roll the Os Humeri outwards, and draw it backwards, and to prevent the Ligament from being pinched between the Bones.

## Teres Major.

*Origin:* Fleſhy, from the Dorſal ſide of the inferior angle of the Scapula, and from a ſmall part of its inferior Coſta. It is ſituated at the under part of the Teres Minor, and ſends off a broad flat Tendon, which accompanies the Tendon of the Latiſſimus Dorſi, and, like it, has its

*Inſertion* into the Ridge at the inner ſide of the Groove for lodging the Tendon of the long head of the Biceps Muſcle.

*Action:* To roll the Humerus inwards, and to draw it backwards and downwards.

## Deltoides.

*Origin:* Fleſhy, from all the outer part of the Clavicle, which is not occupied by the Pectoralis Major, and is ſeparated from it by a ſmall Fiſſure; Tendinous and Fleſhy from the Acromion, and lower Margin of almoſt the whole Spine of the Scapula, oppoſite to the inſertion of the Trapezius.

From theſe Origins it runs, under the appearance of three Muſcles going in different directions, and ſeparated from each other by ſlight Fiſſures; viz. from the Clavicle outwards, from the Acromion downwards, and from the Spine of the Scapula forwards; and is compoſed of a number of Faſciculi, forming a ſtrong Fleſhy Muſcle, which covers the Joint of the Os Humeri.

*Inſertion:* By a ſhort and ſtrong Tendon, into a rough Surface, on the outer ſide of the Os Humeri, near its middle, where the fibres of this Muſcle intermix with part of the Brachialis Externus.

*Action:* To pull the arm directly outwards and upwards, and a little forwards or backwards, according to the different directions of its Fibres.

### Coraco-Brachialis.

*Origin:* Tendinous and Fleſhy, from the fore-part of the Coracoid Proceſs of the Scapula, in common with the ſhort head of the Biceps Muſcle, to which it adheres through the greater part of its length.

*Inſertion:* Tendinous and Fleſhy, into the internal part of the Os Humeri, near its middle, where it ſends down an Aponeuroſis to the internal condyle of the Os Humeri.

*Action:* To bring the Arm obliquely upwards and forwards.

### Subscapularis.

*Origin:* Fleſhy, from the three Coſtæ, and whole inner Surface of the Scapula. It is compoſed of a number of Tendinous and Fleſhy portions, which run in a radiated manner, and make prints on the Bone. In its paſſage outwards, it adheres to the Capſular Ligament of the Joint, and has its

*Inſertion,* Tendinous, into the upper part of the internal Protuberance, at the head of the Os Humeri.

*Action:* To roll the Arm inwards, draw it to the ſide of the Body, and to prevent the Capſular Ligament from being pinched.

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## MUSCLES chiefly situated on the ARM, serving for the MOTIONS of the FORE-ARM.

### Aponeurosis of the Superior Extremity.

The greater part of the Superior Extremity is covered by a Tendinous Membrane, or Aponeuroſis, which ariſes from the Bones of, and Muſcles on, the Shoulder. On the Humerus, it incloſes the Flexor and Extenſor Muſcles of the Fore-Arm, and is connected to the Ridges and Condyles at the under end of the Os Humeri.

At the bending of the Elbow, it receives conſiderable additions from the Tendons of the Biceps and Triceps Muſcles of the Fore-Arm, where the Fibres from the oppoſite ſides decuſſate each other. It becomes thicker and ſtronger on the Fore-Arm, and forms a firm covering

ing to the Mufcles there. In its defcent, it gives off partitions among the Mufcles, and thefe are fixed to the Radius and Ulna, the Membrane itfelf being loft infenfibly upon the Hand. It is thicker and ftronger on the outer than upon the inner fide of the Extremity, particularly on the Fore-Arm, at the under and back-part of which it forms a thick and ftrong band, which, running tranfverfely, gets the name of *Ligamentum Carpi Annulare Pofterius.*

The ufe of this Aponeurofis is, like that in other parts of the Body, it braces the Mufcles, by keeping them in their proper place while in action, and gives origin to many of the Mufcular Fibres which lie immediately under it.

### Biceps Flexor Cubiti, or *Biceps.*

*Origin:* By two heads; the outer one, called its Long Head, begins by a flender Tendon from the upper edge of the Glenoid Cavity of the Scapula, paffes over the ball of the Os Humeri within the Joint, and, in its defcent without the Joint, is inclofed in a Groove upon the upper and fore-part of the Bone, by a Ligament which proceeds from the Capfular one and the adjacent Tendons. The inner Head, called the Short one, arifes, Tendinous and Flefhy, from the Coracoid Procefs of the Scapula, in common with the Caraco-Brachialis Mufcle. A little below the middle of the fore-part of the Os Humeri, the two Heads unite, and form a thick Flefhy Belly.

*Infertion:* By a ftrong roundifh Tendon, into the Tubercle at the upper and inner part of the Radius, and by a Tendinous expanfion into the Aponeurofis of the Fore-Arm, which it likewife affifts in forming.

*Action:* To bend the Fore-Arm, and to affift the Supinator Mufcles in rolling the Radius outwards, and of confequence turning the Palm of the Hand upwards.

### Brachialis Internus.

*Origin:* Flefhy, from the middle of the Os Humeri or Brachii, at each fide of the Deltoides, covering all, and attached to moft of the under and fore-part of the Bone: it runs over the Joint, adhering firmly to the Capfular Ligament.

*Infertion:*

*Insertion:* By a ſtrong ſhort Tendon, into the Coronoid Proceſs of the Ulna.

*Action:* To bend the Fore-Arm, and to prevent the Ligament of the Joint from being pinched.

### Triceps Extensor Cubiti.

*Origin:* By three Heads; the firſt, or *long* one, broad and Tendinous, from the inferior Coſta of the Scapula, near its Cervix: The ſecond, or *ſhort* one, by an acute, Tendinous, and Fleſhy beginning, from the outer and back-part of the Os Humeri, a little below its Head: The third, called *Brachialis Externus*, ariſes, by an acute beginning, from the back-part of the Os Humeri, near the inſertion of the Teres Major. The three Heads unite about the middle of the Humerus, and cover the whole poſterior part of that Bone, adhering to it in their deſcent.

*Inſertion:* Into the upper and outer part of the Olecranon of the Ulna, and partly into the Condyles of the Os Humeri, adhering firmly to the Ligament.

*Action:* To extend the Fore-Arm.

### Anconeus.

*Origin:* Tendinous, from the poſterior part of the external Condyle of the Os Humeri; it ſoon becomes Fleſhy, and part of its Fleſh is likewiſe continued from the third Head of the Triceps. It deſcends under a triangular form, and has its

*Inſertion*, Fleſhy and thin, into a Ridge on the outer and poſterior edge of the Ulna, a little below the Olecranon.

*Action:* To aſſiſt the Triceps in extending the Fore-Arm.

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## MUSCLES ON THE FORE-ARM AND HAND, SERVING FOR THE MOTIONS OF THE HAND AND FINGERS.

To prevent confuſion in the application of the terms *Outer* and *Inner*, when the Muſcles are deſcribed in the prone ſtate of the Hand,—the Arm is here ſuppoſed to hang by the ſide of the Body, with the Palm turned

turned forwards, ſo that the Radius and Thumb are upon the outer, and the Ulna and little finger upon the inner ſide.

### Palmaris Longus.

*Origin:* Tendinous from the internal Condyle of the Os Humeri. It ſoon becomes Fleſhy, and ſends off a long ſlender Tendon, which has its

*Inſertion* into the Ligamentum Carpi Annulare Anterius, and into the

*Aponeuroſis Palmaris*, which begins at the anterior Annular Ligament of the Wriſt; and, after expanding and covering the greater part of the Palm of the Hand, is fixed to the roots of all the Fingers by an equal number of double Slips.

*Action* of the Palmaris Muſcle: To bend the Hand, and ſtretch the Aponeuroſis Palmaris.

This Muſcle is frequently awanting, but the Aponeuroſis is always to be found.

### Palmaris Brevis.

*Origin:* By ſmall bundles of Fleſhy Fibres, from the Ligamentum Carpi Annulare, and Aponeuroſis Palmaris.

*Inſertion:* Into the Skin and Fat which covers the Abductor Minimi Digiti, and into the Os Piſiforme.

*Action:* To aſſiſt in contracting the Palm of the Hand.

### Flexor Carpi Radialis, or *Radialis Internus.*

*Origin:* Tendinous and Fleſhy, from the inner Condyle of the Os Humeri, and from the fore and upper part of the Ulna, between the Pronator Radii Teres and Flexor Sublimis, to which it firmly adheres. It forms a long Tendon, which paſſes down near the Radius, goes through a Foſſa in the Os Trapezium, and becomes flat at its under extremity.

*Inſertion:* Into the fore and upper part of the Metacarpal Bone which ſuſtains the Fore-Finger.

*Action:* To bend the Wriſt, and to aſſiſt in the pronation of the Hand.

### Flexor Carpi Ulnaris, or *Ulnaris Internus.*

*Origin:* Tendinous, from the inner Condyle of the Os Humeri, and by a ſmall Fleſhy beginning, from the inner ſide of the Olecranon. It paſſes along the inner ſide

of

of the Ulna, and originates from it for a confiderable way down: A number of Flefhy Fibres likewife arife from the Aponeurofis of the Fore-Arm.

*Infertion:* By a ftrong Tendon, into the Os Pififorme.

*Action:* To affift the former Mufcle in bending the Wrift.

### Extensor Carpi Radialis Longior,

Or *Radialis Externus Longior.*

*Origin:* Broad, thin, and Flefhy, immediately below the Supinator Longus, from the lower part of the Ridge of the Os Humeri, above its external Condyle. It fends off a long flat Tendon, which paffes down, firft upon the outer, and then upon the back-part of the Radius, defcending in a Groove there, and going under the Annular Ligament of the Wrift.

*Infertion:* Into the upper, back, and outer part of the Metacarpal Bone of the Fore-Finger.

*Action:* To extend the Wrift, and bring the Hand backwards.

### Extensor Carpi Radialis Brevior,

Or *Radialis Externus Brevior.*

It is fimilar to the former Mufcle, but its Flefhy Belly is placed farther down.

*Origin:* Tendinous, in common with the Extenfor Longior, from the external Condyle of the Os Humeri, and from the Ligament which connects the Radius to it: Paffing down upon the back-part of the Radius, its Tendon goes under the Annular Ligament, in the fame channel with the Tendon of the Extenfor Longior.

*Infertion:* Into the upper and back-part of the Metacarpal Bone of the Middle Finger.

*Action:* To affift the former Mufcle in extending the Wrift; or, with it and the Flexor Carpi Radialis, to draw the Hand to the fide next the Thumb.

### Extensor Carpi Ulnaris, or *Ulnaris Externus.*

*Origin:* Tendinous, from the external Condyle of the Os Humeri, and in its progrefs, Flefhy, from the middle of the Ulna, where it paffes over it.

Its round Tendon is inclosed by a Membranous Sheath, in a Groove at the back-part of the extremity of the Ulna.

*Insertion:* Into the posterior and upper part of the Metacarpal Bone of the Little Finger.

*Action:* To assist the two former Muscles in extending the Wrist; or, with the assistance of the Flexor Ulnaris, it draws the Hand towards the side next the Little Finger.

### Flexor Digitorum Sublimis, or Perforatus.

*Origin:* Tendinous and Fleshy, from the internal Condyle of the Os Humeri; Tendinous, from the root of the Coronoid Process of the Ulna; and Membranous and Fleshy from the middle of the fore-part of the Radius. Its Fleshy Belly sends off four round Tendons before it passes under the Annular Ligament of the Wrist. In their course, they are connected to those of the following Muscle by fine Membranous Webs, and upon the Fingers they are inclosed in strong Tendinous Sheaths.

*Insertion:* Into the anterior and upper part of the second Phalanx of the Fingers, being near the under part of the first Phalanx, split and twisted to form a passage, and at the same time a kind of Sheath for the Tendons of the Flexor Profundus.

*Action:* To bend the second, and then the first Phalanx of the Fingers.

### Flexor Digitorum Profundus, or Perforans.

*Origin:* Fleshy, from the external side and upper part of the Ulna, for some way downwards; and from a large share of the Interosseous Ligament. It runs down behind the Flexor Sublimis, and, like it, splits into four Tendons, a little before it passes under the Annular Ligament, and these pass through the slits in the Tendons of the Flexor Sublimis.

*Insertion:* Into the anterior and upper part of the third Phalanx of the Fingers.

*Action:* To bend the last Joint of the Fingers.

### Lumbricales.

*Origin:* Thin and Fleshy, from the outside of the Tendons of the Flexor Profundus, a little above the lower edge of the Annular Ligament of the Wrist. They send

off

off long ſlender Tendons at the under ends of the Metacarpal Bones, which have their

*Inſertion* into the outer ſides of the broad Tendons of the Interoſſei Muſcles, about the middle of the firſt Phalanx.

*Action:* To bend the firſt Phalanx, and increaſe the Flexion of the Fingers while the long Flexors are in full action.

EXTENSOR DIGITORUM COMMUNIS.

*Origin:* Tendinous and Fleſhy, from the external Condyle of the Os Humeri, where it adheres to the Supinator Radii Brevis. It paſſes down upon the back-part of the Fore-Arm, and before it goes under the poſterior Annular Ligament of the Wriſt, it ſplits into three or four Tendons, ſome of which may be divided into ſmaller ones.

Upon the back of the Metacarpal Bones, the Tendons become broad and flat, and near the Heads of the Metacarpal Bones ſend Aponeurotic expanſions to each other.

*Inſertion:* Into the poſterior part of all the Bones of the four Fingers, by a Tendinous expanſion.

*Action:* To extend all the Joints of the Fingers.

SUPINATOR RADII LONGUS.

*Origin:* By an acute Fleſhy beginning, from the Ridge of the Os Humeri, above the external Condyle, nearly as high as the middle of the Bone. It forms a thick Fleſhy Belly, which covers the upper part of the Extenſor Carpi Radialis Longior; and about the middle of the Fore-Arm ſends a tapering Tendon along the edge of the Radius.

*Inſertion:* Into the outer ſide of the under end of the Radius.

*Action:* To roll the Radius outwards, and of conſequence to turn the hand into a ſupine ſituation, or with the Palm forwards.

SUPINATOR RADII BREVIS.

*Origin:* Tendinous, from the external Condyle of the Os Humeri; Tendinous and Fleſhy, from the outer and upper part of the Ulna, and from the Interoſſeous Ligament. It paſſes over the external edge of the Radius, and has its

*Inſertion*

*Insertion* into the upper and fore-part of the Radius.
*Action:* To aſſiſt the Supinator Longus.

### Pronator Radii Teres.

*Origin:* Fleſhy, from the internal Condyle of the Os Humeri, and Tendinous from the Coronoid Proceſs of the Ulna. It paſſes obliquely acroſs the upper end of the Flexor Muſcles of the Wriſt, and is of a tapering form.

*Inſertion:* Thin, Tendinous, and Fleſhy, into the middle of the poſterior part of the Radius.

*Action:* To roll the Radius inwards, by which it brings the Palm of the Hand backwards, or into a ſtate of Pronation.

### Pronator Radii Quadratus.

*Origin:* Broad, Tendinous, and Fleſhy, from the under and inner part of the Ulna: The Fibres run tranſverſely.

*Inſertion:* Into the under and fore-part of the Radius.

*Action:* To aſſiſt the Pronator Teres.

### Flexor Longus Pollicis Manus,

Or *Flexor Tertii Internodii.*

*Origin:* By an acute Fleſhy beginning, from the fore-part of the Radius and Interoſſeous Ligament, the Origin extending from the Tubercle of the Bone, as far as the Pronator Quadratus Muſcle. It has frequently another Origin, by a diſtinct Fleſhy Slip, from the internal Condyle of the Os Humeri.

*Inſertion:* Into the laſt Joint of the Thumb, after paſsing its Tendon under the anterior Annular Ligament of the Wriſt.

*Action:* To bend the laſt Joint of the Thumb.

### Flexor Brevis Pollicis, Or *Flexor Secundi Internodii.*

*Origin:* From the Os Trapezoides, Magnum, and Unciforme. It is divided into two portions, which form a Groove for the Tendon of the Flexor Longus Pollicis.

*Inſertion:* Into the Oſſa Seſamoidea, and Baſe of the firſt Bone of the Thumb.

*Action:* To bend the firſt Joint of the Thumb.

### Opponens Pollicis,

Or *Flexor Oſſis Metacarpi Pollicis*, or *Flexor Primi Internodii*.

*Origin:* Fleſhy, from the Os Trapezium and anterior Annular Ligament of the Wriſt: It lies immediately under the Abductor Pollicis.

*Inſertion:* Tendinous and Fleſhy, into the under and fore-part of the Metacarpal Bone of the Thumb.

*Action:* To bring the Thumb inwards, ſo as to make it oppoſe the Fingers, from which circumſtance it has derived its name.

### Extensor Ossis Metacarpi Pollicis.

*Origin:* Fleſhy, from the middle of the poſterior part of the Ulna, Radius, and Interoſſeous Ligament. It runs obliquely over the Radius, ſending one, or more frequently two Tendons, through an Annular Sheath.

*Inſertion:* Into the Os Trapezium, and upper and back-part of the Metacarpal Bone of the Thumb.

*Action:* To extend the Metacarpal Bone of the Thumb, and draw it from the Fingers.

### Extensor Primi Internodii Pollicis,

Or *Extenſor Minor*.

*Origin:* Fleſhy, from the back-part of the Ulna, and from the Interoſſeous Ligament, near the former Muſcle, by the ſide of which it runs.

*Inſertion:* Tendinous, into the poſterior part of the firſt Bone of the Thumb: Part of it may be traced as far as the ſecond Bone.

*Action:* To extend the firſt Joint of the Thumb.

### Extensor Secundi Internodii, or *Extenſor Major*.

*Origin:* By an acute, Tendinous, and Fleſhy beginning, from the middle of the back-part of the Ulna, and from the Interoſſeous Ligament: Its Tendon runs through a ſmall Groove at the under, inner, and back-part of the Radius.

*Inſertion:* Into the laſt Bone of the Thumb.

*Action:* To extend the laſt Joint of the Thumb.

ABDUCTOR POLLICIS.

*Origin:* Broad, Tendinous, and Fleſhy, from the Ligamentum Carpi Annulare, and from the Os Trapezium. It lies immediately under the Skin, and over the Opponens Muſcle, and has a portion upon its inner ſide, which ALBINUS calls *Abductor Brevis Alter*.

*Inſertion:* Tendinous, into the outer ſide of the root of the firſt Bone of the Thumb.

*Action:* To draw the Thumb from the Fingers.

ADDUCTOR POLLICIS.

*Origin:* Fleſhy, from almoſt the whole length of the Metacarpal Bone of the Middle Finger: Going acroſs the Metacarpal Bone of the Fore-Finger, its Fibres converge, and ſend off a ſhort Tendon.

*Inſertion:* Into the inner part of the root of the firſt Bone of the Thumb.

*Action:* To pull the Thumb towards the Fingers.

INDICATOR, or *Extenſor Indicis Proprius*.

*Origin:* By an acute Fleſhy beginning, from the middle of the poſterior part of the Ulna, at the inner ſide of the Extenſor Secundi Internodii Pollicis: Its Tendon paſſes under the ſame Ligament with the Extenſor Digitorum Communis, with part of which it has its

*Inſertion* into the poſterior part of the Fore-Finger.

*Action:* To aſſiſt the common Extenſor in extending all the Joints of this Finger, particularly in pointing at any thing.

ABDUCTOR INDICIS.

*Origin:* From the Os Trapezium, and from the upper part and inner ſide of the Metacarpal Bone of the Thumb.

*Inſertion:* By a ſhort Tendon, into the outer and back-part of the firſt Bone of the Fore-Finger.

*Action:* To bring the Fore-Finger towards the Thumb.

ABDUCTOR MINIMI DIGITI.

*Origin:* Fleſhy, from the Os Piſiforme, and from that part of the Ligamentum Carpi Annulare Anterius next it.

*Inſertion:* Tendinous, into the inner ſide of the Baſe of the firſt Bone of the Little Finger.

*Action:* To draw the Little Finger from the reſt.

ADDUCTOR MINIMI DIGITI, or *Metacarpeus*.

*Origin:* Fleſhy, from the hook-like Proceſs of the Os Unciforme, and from that part of the anterior Annular Ligament of the Wriſt next it: Paſſing obliquely over the under end of the former Muſcle, it has its

*Inſertion,* Tendinous, into the inner ſide, and anterior or under extremity of the Metacarpal Bone of the Little Finger.

*Action:* To bend the Metacarpal Bone, and bring this Finger towards the reſt.

FLEXOR PARVUS MINIMI DIGITI.

*Origin:* Like that of the former Muſcle, but a little farther down, the belly of the Muſcle lying deeper.

*Inſertion:* By a roundiſh Tendon, into the inner part of the Baſe of the firſt Bone of this Finger.

*Action:* To bend the Little Finger, and aſſiſt the Adductor.

## INTEROSSEI.

*Origin:* From the ſides of the Metacarpal Bones. They fill up the ſpaces between theſe, and are ſomething ſimilar to the Lumbricales, but larger.

*Inſertion:* By ſlender Tendons, along with thoſe of the Lumbricales, into the ſides of the Tendinous expanſions of the Extenſor Digitorum Communis.

*Action:* To give the Fingers their lateral motions, and to aſſiſt a little, according to their ſituations, in bending or extending the firſt Phalanx of the Fingers.

Of the Interoſſei, three, ſeen in the Palm of the Hand, ariſe with ſingle Heads, and are called *Interni;* and four on the back of the Hand, with double Heads, termed *Externi,* or *Bicipitis.* Part of the Externi, however, are alſo ſeen in the Palm of the Hand.

## INTEROSSEI INTERNI.

PRIOR INDICIS.

*Origin:* From the outer part of the Metacarpal Bone of the Fore-Finger.

*Inſertion:* Into the outſide of the Tendon on the back of the Fore-Finger.

*Action:* To draw that Finger outwards, towards the Thumb.

POSTERIOR

### Posterior Indicis.

*Origin:* From the inner part of the Metacarpal Bone of the Fore-Finger.
*Insertion:* Into the inside of the Tendon on the back of the Fore-Finger.
*Action:* To draw the Fore-Finger inwards.

### Prior Annularis.

*Origin:* From the outside of the Metacarpal Bone of the Ring-Finger.
*Insertion:* Into the outside of the Tendon, on the back of the Ring-Finger.
*Action:* To draw the Ring-Finger outwards.

### Interosseus Auricularis.

*Origin:* From the outside of the Metacarpal Bone of the Little Finger.
*Insertion:* Into the outside of the Tendon on the back of the Little Finger.
*Action:* To draw the Little Finger outwards.

## INTEROSSEI EXTERNI.

### Prior Medii Digiti.

*Origin:* From the corresponding sides of the Metacarpal Bones of the Fore and Middle Fingers.
*Insertion:* Into the outside of the Tendon on the back of the Middle Finger.
*Action:* To draw the Middle Finger outwards.

### Posterior Medii Digiti.

*Origin:* From the corresponding sides of the Metacarpal Bones of the Middle and Ring Fingers.
*Insertion:* Into the inside of the Tendon, on the back of the Middle Finger.
*Action:* To draw the Middle Finger inwards.

### Posterior Annularis.

*Origin:* From the corresponding sides of the Metacarpal Bones of the Ring and Little Fingers.
*Insertion:* Into the inside of the Tendon on the back of the Ring-Finger.
*Action:* To draw the Ring-Finger inwards.

# MUSCLES

OF THE

# *INFERIOR EXTREMITY.*

## MUSCLES ON THE PELVIS AND THIGH, SERVING FOR THE MOTIONS OF THE THIGH AND LEG.

### APONEUROSIS OF THE INFERIOR EXTREMITY.

Previous to the defcription of the Mufcles of the Inferior Extremity, it is proper to take notice of a Tendinous expanfion, which, as in the Superior Extremity, forms a general covering to the Mufcles, and fends off Partitions between them, to be connected to the Ridges and Proceffes of the Bones.

It is thick and ftrong on the outfide of the Thigh and Leg, but towards the inner fide of both, particularly on the former, it gradually turns thinner, and has rather the appearance of Cellular Membrane.

It comes down from the Proceffes and other projections on the outfide of the Bones of the Pelvis, efpecially from the Tendons of the external Layers of Mufcles of the Loins and Abdomen.

A little below the Trochanter Major, it is firmly connected to the Linea Afpera; and at the Joint of the Knee, it receives additions from the Tendons of the Extenfors of the Leg, and is there connected with the outer and inner fides of the Head of the Tibia and Fibula. In the Leg, it is firmly fixed to the Spine of the Tibia; and at the under end, to the Bones of the Ankle, where part of it is thicker and ftronger than the reft, and forms the Annular Ligament of the Tarfus. It is loft at laft upon the Foot.

It ferves the fame general purpofes with the Aponeurofis of the Superior Extremity.

PSOAS

Psoas Magnus.
Iliacus Internus. } *See p. 99.*

Pectinalis, or *Pectineus.*

*Origin:* Broad and Fleſhy, from the upper and fore-part of the Os Pectinis, or Pubis, immediately above the Foramen Thyroideum. It runs downwards and outwards at the inner ſide of the Pſoas Magnus Muſcle.

*Inſertion:* By a flat and ſhort Tendon, into the Linea Aſpera of the Os Femoris, a little below the Trochanter Minor.

*Action:* To pull the Thigh upwards and inwards, and to give it, and of conſequence the Foot, a degree of rotation outwards.

*TRICEPS ADDUCTOR FEMORIS.*

Under this appellation are comprehended three diſtinct Muſcles, viz.

Adductor Longus Femoris.

*Origin:* By a ſtrong roundiſh Tendon, from the upper and fore-part of the Os Pubis, and Ligament of the Synchondroſis, at the inner ſide of the Pectinalis: It runs downwards and outwards, and has its

*Inſertion,* By a broad flat Tendon, into the middle of the Linea Aſpera.

Adductor Brevis Femoris.

*Origin:* Tendinous, from the Os Pubis, at the ſide of its Symphyſis, below and behind the former Muſcle: It runs obliquely outwards.

*Inſertion:* By a ſhort flat Tendon, into the inner and upper part of the Linea Aſpera, from a little below the Trochanter Minor, to the beginning of the inſertion of the Adductor Longus.

Adductor Magnus Femoris.

*Origin:* From the ſide of the Symphyſis of the Pubis, a little lower than the former: The Origin is continued downwards from the Crus and Tuberoſity of the Os Iſchium; the fibres run outwards and downwards, ſpreading out wide, and forming a very large Muſcle.

*Inſertion:*

*Inſertion:* Into the whole length of the Linea Aſpera, the under part of the Muſcle extending along the Ridge which leads to the inner Condyle of the Os Femoris; it is alſo fixed by a roundiſh Tendon, into the upper part of that Condyle, a little above which the Femoral Artery, taking a Spiral turn towards the Ham, paſſes between the Tendon of this Muſcle and the Bone.

*Action* of the three Adductores: To bring the Thigh inwards and upwards, according to the different directions of their Fibres, and to aſſiſt a little in rolling the Thigh outwards.

### Obturator Externus.

*Origin:* By a ſemicircular margin, from the parts of the Os Pubis and Iſchium, which form the anterior half of the Foramen Thyroideum, and from the Membrane which fills up that Foramen; the Fibres are collected like rays towards a centre, and paſs outwards over the back-part of the Cervix of the Os Femoris.

*Inſertion:* By a ſtrong round Tendon, into the Cavity at the inner and back-part of the root of the Trochanter Major, adhering in its courſe to the Capſular Ligament of the Thigh-Bone.

*Action:* To roll the Thigh-Bone obliquely outwards, and to prevent the Capſular Ligament from being pinched.

### Gluteus Maximus.

*Origin:* Fleſhy, from the back-part of the Spine of the Ilium; from the under and outer part of the Os Sacrum, and from the Os Coccygis; from the poſterior Sacro-Sciatic Ligament, over which part of the inferior edge hangs in a flap. The Fibres run obliquely forwards, and a little downwards, to form a thick broad Muſcle, which is compoſed of diſtinct coarſe Faſciculi. The upper part of it covers almoſt the whole of the Trochanter Major, and it is intimately connected with the broad Tendon of the *Tenſor Vaginæ Femoris.*

*Inſertion:* By a ſtrong, thick, and broad Tendon, into the upper and outer part of the Linea Aſpera, along which it is continued for ſome way down.

*Action:* To extend the Thigh, and pull it backwards and a little outwards.

### Gluteus Medius.

*Origin:* Fleſhy, from all that part of the Spine of the Os Ilium which is unoccupied by the Gluteus Maximus, from the upper part of the Dorſum of that Bone, and from an Aponeuroſis which covers the Muſcle, and joins the Faſcia of the Thigh. It ſends off a broad Tendon, which has its

*Inſertion* into the outer and back-part of the Trochanter Major.

*Action:* To pull the Thigh outwards, and a little backwards. The fore-part of the Muſcle aſſiſts in rolling it inwards.

### Gluteus Minimus.

*Origin:* Fleſhy, from the lower half of the Dorſum of the Os Ilium: The Origin being continued from the ſuperior anterior Spinous Proceſs, along a riſing of the Bone, as far as the great Sciatic Notch, it runs in a radiated manner to a ſtrong flat Tendon, which has its

*Inſertion* into the fore and upper part of the Trochanter Major.

*Action:* To aſſiſt the former in pulling the Thigh outwards, and a little backwards, it alſo acts, along with other Muſcles, in rolling it inwards.

### Pyriformis.

*Origin:* Within the Pelvis, by three Tendinous and Fleſhy heads, from the ſecond, third, and fourth pieces of the Os Sacrum; and becoming round and tapering, it paſſes out of the Pelvis, along with the Sciatic Nerve, through the great Notch of the Ilium, from which it receives the addition of a few Fleſhy Fibres.

*Inſertion:* By a roundiſh Tendon, into the upper part of the Cavity, at the inner ſide of the root of the Trochanter Major.

*Action:* To aſſiſt in the Abduction of the Thigh, and in its rotation outwards.

### Gemini, or *Gemelli*.

*Origin:* By two diſtinct Heads, the ſuperior from the Spinous Proceſs, and the inferior from the Tuberoſity of the Os Iſchium, and from the Sacro-Sciatic Ligament. The two Heads are united by a Tendinous and Fleſhy Membrane, and form a ſheath for the reception of the Tendon of the Obturator Internus Muſcle.

*Inſertion:* Tendinous and Fleſhy, into the Cavity at the

the inner ſide of the root of the Trochanter Major, on each ſide of the Tendon of the Obturator Internus, to which they firmly adhere.

*Action:* To roll the Thigh outwards, and to prevent the Tendon of the Obturator Internus from ſtarting out of its place while the Muſcle is in action.

OBTURATOR INTERNUS, formerly *Marſupialis.*

*Origin:* Within the Pelvis, by a ſemicircular Fleſhy margin, from the anterior half of the Foramen Thyroideum, and, in part, from the Obturator Ligament.—Its Fibres converge, and ſend off a round Tendon which paſſes over the Os Iſchium, between the Spine and Tuber of that Bone, in the manner a Rope paſſes over a Pulley. —Where it goes over the Capſular Ligament of the Thigh-bone, it is incloſed in the ſheath of the Gemini Muſcles.

*Inſertion:* By a round Tendon, along with the Gemini Muſcles, into the large Pit at the root of the Trochanter Major.

*Action:* To roll the Thigh obliquely outwards.

QUADRATUS FEMORIS.

*Origin:* Tendinous and Fleſhy, from the outer ſide of the Tuberoſity of the Os Iſchium. It runs tranſverſely outwards.

*Inſertion:* Fleſhy, into a rough Ridge continued from the root of the great, to that of the ſmall Trochanter.

*Action:* To roll the Thigh outwards.

The Pyriform, Gemini, Quadratus, and Obturatores Muſcles, which are the Rotators of the Thigh, when it is in a line with the Body, become its Abductors when it is in the bended ſtate.

TENSOR VAGINÆ FEMORIS.

*Origin:* By a narrow, Tendinous, and Fleſhy beginning, from the external part of the anterior ſuperior Spinous Proceſs of the Os Ilium. It goes downwards and a little backwards, forming a thick Fleſhy Belly, which is incloſed in a doubling of the Aponeuroſis or Vagina of the Thigh.

*Inſertion:* A little below the Trochanter Major, into the inner Surface of the Aponeuroſis which covers the outſide of the Thigh.

*Action:* To ſtretch the Aponeuroſis, to aſſiſt in the Abduction of the Thigh, and in its rotation inwards.

SAR-

### Sartorius.

*Origin:* Tendinous, from the ſuperior anterior Spinous Proceſs of the Os Ilium: It ſoon becomes Fleſhy, and runs obliquely downwards over the Muſcles ſituated upon the fore and inner ſide of the Thigh, and is the longeſt Muſcle of the Body.

*Inſertion:* By a broad and thin Tendon, into the inner ſide of the Tibia, near the inferior part of its Tubercle.

*Action:* To move the Knee, and bring one Leg obliquely inwards acroſs the other.

### Gracilis, or *Rectus Internus.*

*Origin:* By a thin Tendon, from the Os Pubis, near the Symphyſis; it ſoon becomes Fleſhy, and deſcends in a direct courſe by the inſide of the Thigh.

*Inſertion:* Tendinous, into the Tibia, under the Sartorius.

*Action:* To aſſiſt the Sartorius, in making the full Flexion of the Knee, after it has been bent to a certain degree by the Flexors on the back-part of the Thigh.

### Rectus Femoris, or *Gracilis Anterior.*

*Origin:* Fleſhy, from the inferior anterior Spinous Proceſs of the Os Ilium, and Tendinous from the Dorſum of the Ilium, a little above the Acetabulum: It runs down over the anterior part of the Cervix of the Os Femoris, and, in its paſſage along the fore-part of the Thigh, it becomes gradually larger as far down as its middle, and afterwards decreaſes towards its lower extremity. In the middle of the Muſcle there is a longitudinal Tendinous Line, from which the Muſcular Fibres run off like the plumage of a Feather, the Tendon itſelf being moſt conſpicuous behind.

*Inſertion:* Tendinous, into the upper part of the Patella.

*Action:* To extend the Leg.

### Cruralis, or *Crureus.*

*Origin:* Fleſhy, from between the two Trochanters of the Os Femoris, near the Minor; and from the fore-part of the Thigh-Bone, to near its under extremity: Its ſides are connected to both Vaſti Muſcles, and, below, it ſends off a Tendon which joins that of the former Muſcle.

*Inſertion:* Into the upper and back-part of the Patella, behind the Rectus.

*Action:* To aſſiſt in the extenſion of the Leg.

### Vastus Externus.

*Origin:* Broad, Tendinous, and Fleſhy, from the outer part of the root of the Trochanter Major. Its Origin is continued from the Trochanter, along the whole outer ſide of the Linea Aſpera, to near the outer Condyle of the Os Femoris, by Fleſhy Fibres, which run obliquely forwards to a middle Tendon, where they terminate.

*Inſertion:* Into the upper and outer part of the Patella, at the edge of the Tendon of the Rectus, with which it is connected; part of it ends in an Aponeuroſis, which is continued to the Leg, and in its paſſage is fixed to the Head of the Tibia.

*Action:* To extend the Leg.

### Vastus Internus.

*Origin:* Tendinous and Fleſhy, from the fore-part of the Os Femoris, and root of the Trochanter Minor. The Origin is alſo continued along the whole inſide of the Linea Aſpera, by Fibres running obliquely forwards and downwards.

*Inſertion:* Tendinous, at the ſide of the Crureus, with which it is connected, into the upper and inner edge of the Patella, continuing Fleſhy lower than the Vaſtus Externus. Part of it likewiſe ends in an Aponeuroſis, which is extended down to the Leg, and is fixed, in its paſſage, to the upper part of the Tibia.

*Action:* To aſſiſt the three former Muſcles in extending the Leg; in doing which, the Patella, fixed to the Tubercle of the Tibia by a ſtrong Ligament, ſupplies the office of a Pulley.

### Semitendinosus.

*Origin:* Tendinous and Fleſhy, in common with the long Head of the Biceps, from the poſterior part of the Tuberoſity of the Os Iſchium: Its Fleſhy Belly runs down the back-part of the Thigh, and ſends off a long roundiſh Tendon, which, paſſing along the inner ſide of the Knee, ends flat, and has its

*Inſertion* into the inſide of the Ridge of the Tibia, a little below its Tubercle, and connected to the under edge of the Gracilis.

*Action:* To bend the Leg, and, when bended, to roll it inwards.

### Semimembranosus.

*Origin:* By a broad flat Tendon, from the upper and poſterior part of the Tuberoſity of the Os Iſchium. The Fibres compoſing the Fleſhy Belly, run in a very oblique

lique direction towards a Tendon at the inner and under part of the Muſcle, which is ſituated behind the Semitendinoſus.

*Inſertion:* Into the inner and back-part of the Head of the Tibia.

*Action:* To bend the Leg, and bring it directly backwards.

### Biceps Flexor Cruris.

*Origin:* By two diſtinct Heads; the firſt, or *Long Head*, ariſes in common with the Semitendinoſus, from the upper and back-part of the Tuberoſity of the Os Iſchium. The ſecond, or *Short Head*, ariſes from the Linea Aſpera, a little below the termination of the Gluteus Maximus, by a Fleſhy acute beginning, which ſoon grows broader, as it deſcends to join the firſt Head, a little above the external Condyle of the Os Femoris.

*Inſertion:* By a ſtrong Tendon, into the upper part of the Head of the Fibula.

*Action:* To bend the Leg.

The Semitendinoſus and Semimembranoſus form the *inner Ham-ſtring*, and the Biceps the *outer Ham-ſtring*. Between the Ham-ſtrings the great Veſſels and Nerves lie, which run to the Leg.

### Popliteus.

*Origin:* By a ſmall round Tendon, from the outer and under part of the external Condyle of the Os Femoris, and from the back-part of the Capſular Ligament of the Joint. In paſſing the Joint, it becomes Fleſhy, ſpreads out, and the Fibres run obliquely inwards and downwards, being covered with a Tendinous Membrane.

*Inſertion:* Thin and Fleſhy, into a Ridge at the upper and inner edge of the Tibia, a little below its Head.

*Action:* To aſſiſt in bending the Leg, and, when bent, to roll it inwards. The Muſcle alſo prevents the Capſular Ligament from being pinched.

## MUSCLES SITUATED ON THE LEG AND FOOT, SERVING FOR THE MOTIONS OF THE FOOT AND TOES.

### GASTROCNEMIUS EXTERNUS.

*Origin:* By two diſtinct Heads; one from the upper and back-part of the internal Condyle of the Os Femoris, and from that Bone, a little above its Condyle, by two ſeparate beginnings. The other Head ariſes, Tendinous, from the upper and back-part of the external Condyle. A little below the Joint, their Fleſhy Bellies meet in a middle Tendon, the union giving the appearance of a longitudinal Raphe; below the middle of the Tibia, the Muſcle ſends off a broad thin Tendon, which, becoming gradually narrower, joins that of the Gaſtrocnemius Internus, a little above the Ankle.

### GASTROCNEMIUS INTERNUS, or *Soleus*.

*Origin:* By two Heads; the firſt is from the back-part of the Head, and upper and back-part of the Body of the Fibula. The other Origin is from the back-part of the Tibia, and runs inwards along the under edge of the Popliteus, towards the inner part of the Tibia, from which it receives Fleſhy Fibres for ſome way down. The Fleſh of this Muſcle, covered by the Tendon of the Gaſtrocnemius Externus, deſcends nearly as far as the extremity of the Tibia, a little above which the Tendons of both Gaſtrocnemii unite, and form a ſtrong round Chord, called *Tendo-Achillis.*

*Inſertion:* Into the upper and back-part of the Os Calcis, by the projection of which the Tendo-Achillis is at a conſiderable diſtance from the Tibia.

*Action:* To extend the Foot, by raiſing the Heel.

### PLANTARIS.

*Origin:* Thin and Fleſhy, from the upper and back-part of the external Condyle of the Os Femoris, and from the Capſular Ligament of the Joint. A little below the Head of the Fibula, it ſends off a long ſlender Tendon, which deſcends obliquely inwards, between the inner Heads of the Gaſtrocnemii Muſcles, and afterwards runs along the inner edge of the Tendo-Achillis.

*Inſertion:* Into the inſide of the poſterior part of the Os Calcis, below the Tendo-Achillis.

*Action:* To aſſiſt the Gaſtrocnemii, and to pull the Capſular Ligament of the Knee from between the Bones.

This Muſcle, though ſeldom, has been found awanting.

### Tibialis Anticus.

*Origin:* Tendinous, from the upper part of the Tibia, between its Tubercle and the articulation with the Fibula; it then runs down Fleſhy, on the outſide of the Tibia, adhering to it and to the upper part of the Interoſſeous Ligament; near the under part of the Leg, it ſends off a ſtrong round Tendon, which paſſes under part of the Ligamentum Tarſi Annulare, near the inner Ankle.

*Inſertion:* Tendinous, into the middle of the Os Cuneiforme Internum, and Baſe of the Metatarſal Bone of the Great Toe.

*Action:* To bend the Foot, by bringing the fore-part of it towards the Leg.

### Tibialis Posticus.

*Origin:* Fleſhy, from the upper and fore-part of the Tibia, under the Proceſs which joins it to the Fibula; then paſſing through a Fiſſure in the upper part of the Interoſſeous Ligament, it continues its origin from the back-part of the Fibula, next the Tibia, and from near one half of the upper part of the laſt-named Bone, as alſo from the Interoſſeous Ligament, the Fibres running towards a middle Tendon, which, in its deſcent, becomes round, and paſſes in a Groove behind the Malleolus Internus.

*Inſertion:* Tendinous, chiefly into the upper and inner part of the Os Naviculare, and partly into the under Surface of the Tarſal Bones by ſeparate Slips, the laſt of which goes to the root of the Metatarſal Bone of the Middle Toe.

*Action:* To extend the Foot, and, with the aſſiſtance of the Tibialis Anticus, to turn the Toes inwards, and the outer edge of the Foot downwards.

### Peroneus Longus, or *Primus*.

*Origin:* Tendinous and Fleſhy, from the fore-part of the Head of the Fibula; and Fleſhy from the outer part of the Bone, down to within a hand-breadth of the Ankle.

Ankle. The Fibres run in a Penniform manner towards a long Tendon, which becomes round, and paſſes in a ſheath through a channel, behind the Malleolus Externus. It is then reflected to the ſinuoſity of the Os Calcis, runs along a Groove in the Os Cuboides, and goes obliquely acroſs the Bones in the middle of the Sole.

*Inſertion:* Tendinous, into the outſide of the root of the Matatarſal Bone of the Great Toe, and partly into the Os Cuneiforme Internum.

*Action:* To extend the Foot a little, to draw it outwards, and to turn the inner edge of it downwards.

### Peroneus Brevis, or *Secundus.*

*Origin:* Fleſhy, from the outer part of the Fibula, beginning ſome way above the middle height of the Bone, and continuing its adheſion to the Malleolus Externus. The Fibres run, like thoſe of the former Muſcle, to an external Tendon, which becomes round, paſſes behind the outer Ankle, where it is included in the ſame ſheath with the Tendon of the preceding Muſcle, and there, croſſing behind that Tendon, it runs forwards in a ſheath proper to itſelf.

*Inſertion:* Tendinous into the root and external part of the Metatarſal Bone of the Little Toe.

*Action:* To aſſiſt the former Muſcle in pulling the Foot outwards, and its outer edge upwards, and in extending the Foot in a ſmall degree.

### Extensor Longus Digitorum Pedis.

*Origin:* Tendinous and Fleſhy, from the upper and outer part of the Head of the Tibia, and from the Head and almoſt the whole length of the anterior Spine of the Fibula. It ariſes, alſo, Fleſhy, from the Aponeuroſis which covers the upper and outer part of the Leg, and from the Interoſſeous Ligament. Under the Ligamentum Tarſi Annulare, it ſplits into four round Tendons, which paſs along the upper part of the Foot.

*Inſertion:* Into the Baſe of the firſt Phalanx of the four ſmall Toes, by flat Tendons which are expanded over the upper ſide of the Toes to the root of the laſt Phalanx.

*Action:* To extend all the Joints of the four ſmall Toes.

A portion of this Mufcle is called, by Albinus,

### Peroneus Tertius.

*Origin:* From the middle of the Fibula, in common with the Extenfor Longus Digitorum: It continues down to near its inferior extremity, and fends its Flefhy Fibres forwards to a Tendon which paffes under the Annular Ligament.

*Infertion:* Into the root of the Metatarfal Bone of the Little Toe.

*Action:* To affift in bending the Foot.

### Extensor Brevis Digitorum.

*Origin:* Flefhy and Tendinous, from the outer and fore-part of the Os Calcis. It foon forms a Flefhy Belly, which is divided into four portions; thefe fend off an equal number of Tendons, which pafs over the upper part of the Foot, croffing under the Tendons of the former Mufcle.

*Infertion:* By four flender Tendons, into the Tendinous Expanfion from the Extenfor Pollicis, which covers the Great Toe, and into the Tendinous Expanfion from the Extenfor Longus, which covers the other Toes, excepting the little one.

*Action:* To affift in the extenfion of the Toes.

### Aponeurosis Plantaris.

This, like the Aponeurofis Palmaris, is a ftrong Tendinous Expanfion, which covers the Mufcles, Veffels, and Nerves of the Sole.

It arifes from the Tuberofity at the under and back-part of the Os Calcis, and is divided into three portions, which run forwards to be connected to the Heads of the Metatarfal Bones of all the Toes. The middle Portion is fubdivided into five Slips, which fplit at the roots of the Toes, and embrace the Tendons of the Flexor Mufcles.

It ferves the fame purpofe with Aponeurofes in other parts of the Body, and alfo performs the office of a Ligament, by binding the two ends of the Arch of the Foot together.

### Flexor Brevis Digitorum Pedis,

Or *Flexor Sublimis*, or *Perforatus*.

*Origin:* Narrow and Fleſhy, from the inferior anterior part of the Tuberoſity of the Os Calcis, and from the Aponeuroſis Plantaris. It forms a thick Fleſhy Belly, which ſends off four Tendons, and theſe ſplit for the paſſage of the Tendons of the Flexor Longus.

*Inſertion:* Into the ſecond Phalanx of the four ſmall Toes. The Tendon of the Little Toe is often awanting.

*Action:* To bend the firſt and ſecond Joints of the Toes, but particularly the ſecond.

### Flexor Longus Digitorum,

Or *Flexor Profundus*, or *Perforans*.

*Origin:* By an acute Tendon, which ſoon becomes Fleſhy, from the back-part of the Tibia, at the under edge of the Popliteus; and this beginning is continued down the inner edge of the Bone, by ſhort Fleſhy Fibres ending in its Tendon; alſo by Tendinous and Fleſhy Fibres, from the outer edge of the Tibia; and between this double order of Fibres the Tibialis Poſticus lies incloſed. Having gone under two Annular Ligaments, it paſſes through a Sinuoſity at the inſide of the Os Calcis; and about the middle of the Sole, it receives a Tendon from the Flexor Longus Pollicis; it then divides into four Tendons, which run through the ſlits of the Perforatus.

*Inſertion:* Into the Baſe of the third Phalanx of the four ſmaller Toes, the Tendons of this, as well as of the Flexor Brevis, being incloſed upon the Toes by Annular Ligaments.

*Action:* To bend the different Joints of the Toes, out eſpecially the laſt one.

### Flexor Digitorum Accessorius,

Or *Maſſa Carnea Jacobi Sylvii.*

*Origin:* By two portions; the inner Fleſhy, from the Sinuoſity of the Os Calcis; the outer Tendinous, but ſoon becoming Fleſhy, from the fore and outer part of that Bone.

*Inſertion:*

*Infertion:* Into the Tendon of the Flexor Longus, before it divides into fmaller Tendons.

*Action:* To affift the Flexor Longus.

LUMBRICALES.

*Origin:* By four Tendinous and Flefhy beginnings, from the Tendon of the Flexor Profundus, juft before its divifion; they run forwards, under the fame general appearance with thofe in the Hand, but are fomewhat fmaller.

*Infertion:* By four flender Tendons, at the infide of the firft Joint of the four fmall Toes, into the Tendinous Expanfion fent from the Extenfors to cover the upper part of the Toes.

*Action:* To increafe the flexion of the Toes, and to draw them inwards.

EXTENSOR PROPRIUS POLLICIS PEDIS, or *Extenfor Longus.*

*Origin:* By an acute, Tendinous, and Flefhy beginning, from the fore-part of the Fibula, fome way below its Head; it continues its Origin from the fame Bone, to near the outer Ankle, by Flefhy Fibres, which defcend obliquely towards a Tendon.

*Infertion:* Tendinous, into the pofterior part of both the Bones of the Great Toe.

*Action:* To extend the Great Toe.

FLEXOR LONGUS POLLICIS.

*Origin:* Tendinous and Flefhy, from the back-part of the Fibula, fome way below its Head, being continued down the fame Bone, almoft to its under end, by a double order of oblique Flefhy Fibres; its Tendon paffes under an Annular Ligament at the inner Ankle.

*Infertion:* Into the laft Joint of the Great Toe.

*Action:* To bend the Great Toe, and particularly the laft Joint.

FLEXOR BREVIS POLLICIS.

*Origin:* Tendinous, from the under and fore-part of the Os Calcis, and from the Os Cuneiforme Externum: It is infeparably united with the Abductor and Adductor Pollicis.

*Infertion:*

*Insertion:* Into the external Os Sesamoideum, and root of the first Bone of the Great Toe.

*Action:* To bend the first Joint of the Great Toe.

### Abductor Pollicis.

*Origin:* Fleshy, from the anterior and inner part of the Protuberance of the Os Calcis, and Tendinous from the same Bone, where it joins with the Os Naviculare.

*Insertion:* Tendinous, into the internal Os Sesamoideum, and root of the first Bone of the Great Toe.

*Action:* To pull the Great Toe from the rest.

### Adductor Pollicis.

*Origin:* By a long thin Tendon, from the under part of the Os Calcis; from the Os Cuboides; from the Os Cuneiforme Externum; and from the root of the Metatarsal Bone of the second Toe: The Muscle is divided into two Fleshy portions, which unite, and have their

*Insertion* into the external Os Sesamoideum, and root of the Metatarsal Bone of the Great Toe.

*Action:* To pull the Great Toe towards the rest.

### Abductor Minimi Digiti Pedis.

*Origin:* Tendinous and Fleshy, from the edge of a Cavity on the under part of the Protuberance of the Os Calcis, and from the root of the Metatarsal Bone of the Little Toe.

*Insertion:* Into the outer part of the root of the first Bone of the Little Toe.

*Action:* To draw the Little Toe outwards.

### Flexor Brevis Minimi Digiti.

*Origin:* Tendinous from the Os Cuboides, near the Groove for lodging the Tendon of the Peroneus Longus; and Fleshy, from the outer and back-part of the Metatarsal Bone of this Toe.

*Insertion:* Into the anterior extremity of the Metatarsal Bone, and root of the first Bone of the Little Toe.

*Action:* To bend this Toe.

### Transversalis Pedis.

*Origin:* Tendinous, from the under and fore-part of the Metatarsal Bone of the Great Toe, and from the internal

ternal Os Sesamoideum of the firft Joint. It forms a Flefhy Belly, which runs tranfverfely between the Metatarfal Bones and Flexor Mufcles of the Toes, and has its

*Infertion,* Tendinous, into the under and outer part of the anterior extremity of the Metatarfal Bone of the Little Toe, and Ligament of the next Toe.

*Action:* To contract the Foot, by bringing the roots of the outer and inner Toes towards each other.

## INTEROSSEI PEDIS.

The Interoffei arife, Tendinous and Flefhy, from, and fill the fpaces between, the Metatarfal Bones. Three, called *Interni*, arife with fingle Heads, and are placed in the Sole; and four, termed *Externi*, or Bicipites, arife with double Heads, and appear on both fides of the Foot.

The Infertion of all the Interoffei is by flender Tendons, into the expanfion fent off from the Tendons of the Lumbricales and Extenfor Mufcles of the Toes.

### *INTEROSSEI INTERNI.*

#### Prior, or Abductor Medii Digiti.

*Origin:* From the infide of the Metatarfal Bone of the Middle Toe.

*Infertion:* Into the infide of the root of the firft Bone of the Middle Toe.

*Action:* To pull the Middle Toe inwards.

#### Prior, or Abductor Tertii Digiti.

*Origin:* From the inner and under part of the Metatarfal Bone of the Third Toe.

*Infertion:* Into the infide of the root of the firft Bone of the Third Toe.

*Action:* To pull the Third Toe inwards.

#### Prior, or Adductor Minimi Digiti.

*Origin:* From the infide of the Metatarfal Bone of the Little Toe.

*Infertion:* Into the infide of the root of the firft Bone of the Little Toe.

*Action:* To pull the Little Toe inwards.

*INTER-*

*INTEROSSEI EXTERNI*, or *Bicipites*.

PRIOR, or ABDUCTOR INDICIS.

*Origin:* From the correſponding ſides of the Metatarſal Bones of the Great and Fore-Toes.

*Inſertion:* Into the inſide of the root of the firſt Bone of the Fore-Toe.

*Action:* To pull the Fore-Toe inwards.

POSTERIOR, or ADDUCTOR INDICIS.

*Origin:* From the correſponding ſides of the fore and ſecond Toes.

*Inſertion:* Into the outſide of the root of the firſt Bone of the Fore-Toe.

*Action:* To pull the Fore-Toe outwards.

POSTERIOR, or ADDUCTOR MEDII DIGITI.

*Origin:* From the correſponding ſides of the Metatarſal Bones of the Second and Third Toes.

*Inſertion:* Into the outſide of the root of the firſt Bone of the Second Toe.

*Action:* To pull the Second Toe outwards.

POSTERIOR, or ADDUCTOR TERTII DIGITI.

*Origin:* From the correſponding ſides of the Metatarſal Bones of the Third and Little Toe.

*Inſertion:* Into the outſide of the root of the firſt Bone of the Little Toe.

*Action:* To pull the Third Toe outwards.

# PART III.

OF THE

# BURSÆ MUCOSÆ.

OF THE

# STRUCTURE OF THE BONES.

OF THE

# LIGAMENTS

AND

# OTHER PARTS OF THE JOINTS.

OF THE

# BURSÆ MUCOSÆ.

THE BURSÆ belong to the Extremities, and are found between Tendons and Bones, where they play upon each other; as at the inſertion of the Biceps Flexor Cubiti.

Or, where Tendons rub on each other; as between thoſe of the Extenſores Carpi Radiales and Extenſores Pollicis.

Or, between Tendons and the external parts; as in the Sheaths of the Tendons of the Flexors of the Fingers and Toes, where they furniſh a lining to the Sheaths, without communicating with other parts.

Or, between Tendons and Ligaments of the Joints; as between the Tendons of the Flexors of the Fingers, and Capſular Ligament of the Wriſt.

They are found in a few places, where Proceſſes play upon Ligaments; as between the Acromion and Capſular Ligament of the Humerus.

Or, where Bones play on each other; as between the Clavicle and Coracoid Proceſs of the Scapula.

Some of the Burſæ of contiguous Tendons communicate with each other; as between the Extenſor Carpi Radialis, and Extenſor Secundi Internodii Pollicis.

Others communicate, not only in Adults, but often alſo in Children, with the Cavity of the Joints; as behind the Tendon of the Extenſors of the Leg, though this is more frequently the caſe in advanced age.

Their ſtructure is the ſame with the inner Layer of the Capſular Ligament of the Joints.

Like that, they are formed of a thin pellucid Membrane, poſſeſſing little ſenſibility, and joined to the ſurrounding parts by Cellular Subſtance, and many of them are covered with Fat.

Like the Capsul of the Joint, they have commonly a thin Layer of Cartilage, or of tough Membrane, between them and the Bone.

Like it too they have reddish coloured masses of Fat projecting into their Cavities, from the edges of which Fringes are sent off; as behind the Ligament of the Patella, or at the insertion of the Tendo Achillis.

Like it also, the inside of the Bursæ is remarkably smooth, being lubricated with the same kind of Gelatinous Mucus which is found in the Cavities of the Joints; —the Mucus serving the same general purpose with that of the Joints, viz. to lessen the friction, and prevent the consequences which would otherwise arise from it.

# BURSÆ MUCOSÆ

OF THE

# SUPERIOR EXTREMITY.

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## BURSÆ *about the* JOINT *of the* SHOULDER.

A BURSA under the Clavicle, where it plays upon the Coracoid Proceſs.

A large Burſa between the Acromion and Ligament, joining it to the Coracoid Proceſs, and the Capſular Ligament of the Humerus.

A ſmall Burſa, ſometimes abſent, between the point of the Coracoid Proceſs and Capſular Ligament of the Humerus.

A Burſa between the Tendon of the Subſcapularis Muſcle and Capſular Ligament of the Humerus, frequently communicating with the Cavity of that Joint.

A Burſa, not conſtant, between the origin of the Coraco Brachialis and ſhort head of the Biceps Muſcle, and Capſular Ligament of the Humerus.

A Burſa between the Tendon of the Teres Major and the Os Humeri, and upper part of the Tendon of the Latiſſimus Dorſi.

A ſmall Burſa between the Tendon of the Latiſſimus Dorſi and Os Humeri.

A Burſa between the Tendon of the long head of the Biceps Flexor Cubiti and the Humerus.

## BURSÆ *about the* JOINT *of the* ELBOW.

A Burſa, with a *Peloton* of fat, between the Tendon of the Biceps and Tubercle of the Radius.

A ſmall Burſa between the Tendon common to the Extenſor Carpi Radialis Brevior, Extenſor Digitorum Communis, and round head of the Radius.

A ſmall Burſa, between the Tendon of the Triceps Extenſor Cubiti and Olecranon.

Bursæ *upon the Under Part of the* Fore-Arm *and* Hand.

A very large Burſa ſurrounding the Tendon of the Flexor Pollicis Longus.

Four long Burſæ lining the ſheaths which incloſe the Tendons of the Flexors upon the Fingers.

Four ſhort Burſæ on the fore-part of the Tendons of the Flexor Digitorum Sublimis in the Palm of the Hand.

A large Burſa between the Tendon of the Flexor Pollicis Longus, the fore-part of the Radius, and Capſular Ligament of the Os Trapezium.

A large Burſa between the Tendons of the Flexor Digitorum Profundus, and the fore-part of the end of the Radius and Capſular Ligament of the Wriſt.

Theſe two laſt-mentioned Burſæ are ſometimes found to communicate with each other.

A Burſa between the Tendon of the Flexor Carpi Radialis and Os Trapezium.

A Burſa between the Tendon of the Flexor Carpi Ulnaris and Os Piſiforme.

A Burſa between the Tendon of the Extenſor Oſſis Metacarpi Pollicis and Radius.

A large Burſa common to the Extenſores Carpi Radiales, where they croſs behind the Extenſor Oſſis Metacarpi Pollicis.

Another Burſa common to the Extenſores Carpi Radiales, where they croſs behind the Extenſor Secundi Internodii Pollicis.

A third Burſa at the inſertion of the Tendon of the Extenſor Carpi Radialis Brevior.

A Burſa for the Tendon of the Extenſor Secundi Internodii Pollicis, which communicates with the ſecond Burſa common to the Extenſores Carpi Radiales.

Another Burſa between the Tendon of the Extenſor Secundi Internodii Pollicis and Metacarpal Bone of the Thumb.

A Burſa between the Tendons of the Extenſor of the Fore, Middle, and Ring-Fingers, and Ligament of the Wriſt.

A Burſa for the Tendons of the Extenſor of the Little Finger.

A Burſa between the Tendon of the Extenſor Carpi Ulnaris and Ligament of the Wriſt.

# BURSÆ MUCOSÆ

OF THE

## *INFERIOR EXTREMITY.*

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BURSÆ *upon the* PELVIS *and upper part of the* THIGH.

A VERY large Burſa between the Iliacus Internus and Pſoas Magnus Muſcle, and Capſular Ligament of the Thigh-Bone.

A Burſa between the Tendon of the Pectinalis Muſcle and Thigh-Bone.

A ſmall Burſa between the Gluteus Medius and Trochanter Major, and before the Inſertion of the Tendon of the Pyriformis.

A Burſa between the Tendon of the Gluteus Minimus and Trochanter Major.

A Burſa between the Gluteus Maximus and Vaſtus Externus.

A Burſa between the Gluteus Medius and Pyriformis.

A Burſa between the Obturator Internus and Os Iſchium.

An oblong Burſa continued a conſiderable way between the Obturator Internus, Gemini, and Capſular Ligament of the Thigh-Bone.

A ſmall Burſa at the Head of the Semimembranoſus and Biceps Flexor Cruris.

A ſmall Burſa between the origin of the Semitendinoſus and that of the two former Muſcles.

A large Burſa between the Tendon of the Gluteus Maximus and root of the Trochanter Major.

Two ſmall Burſæ between the Tendon of the Gluteus Maximus and Thigh-Bone.

### Bursæ *about the* Joint *of the* Knee.

A large Burſa behind the Tendon of the Extenſors of the Leg, frequently found to communicate with the Cavity of the Knee-joint.

A Burſa behind the Ligament which joins the Patella to the Tibia, in the upper part of the Cavity of which a fatty ſubſtance projects.

A large Burſa between the Tendons of the Sartorius, Gracilis, Semitendinoſus, and Tibia.

A Burſa between the Tendons of the Semimembranoſus and Gemellus, and Ligament of the Knee. This Burſa contains a ſmall one within it, from which a paſſage leads into the Cavity of the Joint of the Knee.

A Burſa between the Tendon of the Semimembranoſus and the lateral internal Ligament of the Knee, from which alſo there is a paſſage leading into the Joint of the Knee.

A Burſa under the Popliteus Muſcle, likewiſe communicating with the Cavity of the Knee-joint.

### Bursæ *about the* Ankle.

A Burſa between the Tendon of the Tibialis Anticus, and under part of the Tibia and Ligament of the Ankle.

A Burſa between the Tendon of the Extenſor Proprius Pollicis Pedis, and the Tibia and Capſular Ligament of the Ankle.

A Burſa between the Tendons of the Extenſor Digitorum Longus, and Ligament of the Ankle.

A large Burſa common to the Tendons of the Peronei Muſcles.

A Burſa proper to the Tendon of the Peroneus Brevis.

A Burſa between the Tendo Achillis and Os Calcis, into the Cavity of which a *Peloton* or Maſs of Fat projects.

A Burſa between the Os Calcis and Flexor Pollicis Longus.

A Burſa between the Flexor Digitorum Longus and the Tibia and Os Calcis.

A Burſa between the Tendon of the Tibialis Poſticus and the Tibia and Aſtragalus.

BURSÆ MUCOSÆ *in the Sole of the Foot.*

A ſecond Burſa for the Tendon of the Peroneus Longus, with an oblong *Peloton* of fat within it.

A Burſa common to the Tendon of the Flexor Pollicis Longus, and that of the Flexor Digitorum Profundus, at the upper end of which a fatty ſubſtance projects.

A Burſa for the Tendon of the Tibialis Poſticus.

Burſæ of the Tendons of the Flexors of the Toes.

OF THE

# STRUCTURE

OF

# *THE BONES.*

THE Bones derive their *Hardneſs* from the great quantity of *Earth* contained in their ſubſtance.

They are more or leſs of a *white* or *red* colour, according to the proportions of *Earth* or *Blood* entering into their compoſition; and are therefore whiteſt in the Adult, and reddeſt in the Child, more Earth being found in the former, and more Blood in the latter.

Bones are compoſed of *Lamellæ*, or plates, which are formed of Fibres running longitudinally, or in a radiated manner, according to the natural figure of the Bone; as may be ſeen by expoſing them to the heat, or to the weather, &c.

The *Plates* of Bones are originally formed by the Veſſels of the Perioſteum Externum, and Membrana Medullaris, and not, as has been ſuppoſed by ſome Authors, from Layers detached from the external Perioſteum.

The Plates are *connected by Fibres*, which ſome have conſidered as *Claviculi* or *Nails*, which were called *Perpendicular*, *Oblique*, &c. according to their different directions.

The *outer Plates* of Bones are firmly compacted, ſo as to appear like one ſolid ſubſtance.

The *inner parts* of Bones in general, whether long, round, or flat, have their Plates and Threads running in various directions, interſecting each other, and forming the *Cancelli*, or *Spongy Subſtance* of the Bones; the Cancelli every where communicating freely among themſelves.

The *Cancelli*, in the middle of long Bones, are Fibrous, and form the *Reticular Subſtance* which divides the Bone into larger caverns.

Towards the extremities, the Cancelli are lamellated, and

and much more numerous than in the middle of long Bones.

Cancelli of a ſimilar nature to thoſe of the long Bones are alſo placed between the tables of flat, and inner parts of round Bones.

In ſome of the broad Bones, however, the ſolid parts are ſo much compreſſed, as to leave little or no room for Cancelli.

On the contrary, in the middle of the long Bones, the *Cavities* are ſo large as to give the appearance of a *hollow Cylinder.*

The Cancelli of Bones are formed by the internal Plates being ſent inwards to decuſſate each other; and in the long Bones, the ſides become gradually thinner towards the extremities, while the Cancelli in proportion become more numerous.

The Cancelli exiſt in the moſt ſolid parts of Bones, as can be readily ſeen by expoſure to heat, or in Bones enlarged by diſeaſe. In either of theſe caſes, ſmall caverns may be obſerved, and are diſtinguiſhable from the Canals for containing the Veſſels, the former being irregular, and the latter cylindrical.

The Cancelli ſupport the Membranes containing the Marrow, as the Cellular Subſtance does the fat. They alſo furniſh a wider ſurface for the diſperſion of the arteries which ſecrete the Marrow.

Upon the *ſurface* of Bones there are numerous *Fiſſures*, for the more intimate connection of the Perioſteum with the Bone, and for lodgement to Blood-veſſels.

Many *Orifices* are obſerved upon the ſurface, and particularly in the furrows of Bones, for the tranſmiſſion of Blood-veſſels into their ſubſtance.

Near the middle of moſt of the Bones, eſpecially the long ones, there is a ſlanting *Canal* for the paſſage of the principal Medullary Veſſels.

Numerous orifices are alſo obſerved at the *extremities of long Bones*, ſerving, ſome of them, for the tranſmiſſion of Blood-veſſels, and others giving attachment to the Fibres of the Ligaments of the Joints.

The principal Veſſels paſs into the Cancelli, internal Membranes, and Marrow, and return to the Subſtance of the Bone, where they meet thoſe ſent inwards from the Perioſteum.

In ſome *flat Bones*, as thoſe of the *Cranium*, the Bones are entirely ſupplied by the Veſſels of the ſurrounding

rounding Membranes, and the Vafcularity there is uniform.

Bones, like other parts, have their *Lymphatics*, as appears by the abforption of madder found depofited in the Subftance of the Bones of Animals which receive it with their food ;—by the abforption of part of the Bone itfelf, when in the difeafed ftate, and even by injection.

The *Nerves* of the Bones are fmall, but may be obferved in certain parts of the Bones, and, it is prefumed, exift in all.

From the minutenefs of the Nerves, Bones are not *fenfible* in the found ftate ; and even in the difeafed, the pain felt may be owing to the Membranes within them.

The general *ufe* of Bones is,—to furnifh attachment to Mufcles, and to protect and fupport the Bowels.

## Periosteum.

The *Periofteum* derives its name from its furnifhing a general covering to the Bones.

In certain parts, however, it is *perforated* by Mufcles, Ligaments, or Cartilages, which are fixed immediately to the furface of the Bones ; and at the Joints it feparates from the Bones, to give a covering to the Capfular Ligaments.

It is *formed* of many Fibres, which, in certain parts, can be divided into Layers.

The *outer Surface* of this Membrane is connected to the furrounding parts by Cellular Subftance.

The *inner Surface* is more uniform than the outer, and its Fibres run, moft frequently, in the fame direction with thofe of the fubjacent Bones.

The *inner part* of the Periofteum is connected to the furface of the Bones by Blood-Veffels and Ligamentous Fibres ; and this connection is much ftronger in the Child than in the Adult.

The Periofteum, as well as other Membranes, muft be fupplied with *Nerves* ;—but thefe are too minute to be readily traced.

The *fenfibility* of the Periofteum, like that of other Membranes, is by no means acute, though found to poffefs a certain degree of it.

The *principal ufes* of this Membrane are,—To tranfmit the Veffels which are fpread out upon its furface into the Subftance of the Bones ;—to give attachment

to

to Mufcles;—to prevent the effects of friction between them and the Bones;—to affift in binding the latter together, &c.

## Membrana Medullaris,

### *Improperly called* Periosteum Internum.

It is divided into numberlefs fmall parts which line the inner fide of the Bones and all the Cancelli, and affords a large furface for the difperfion of the Secretory Veffels of the Marrow, which it inclofes.

## Marrow.

The *Marrow* may be confidered as an *appendage* of the general Corpus Adipofum, and is depofited in the Cavities of the Bones, while nature is fupplying fat to the reft of the Body.

Like the Fat, when viewed in a microfcope, it refembles a clufter of Pearls;—or it is contained in fpherical facs upon which Veffels are minutely difperfed, but from which no Excretory Ducts have yet been difcovered.

It poffeffes little *fenfibility*; and what it does poffefs is confidered by the lateft Authors, as belonging rather to its Membranes than to the Marrow itfelf.

## Cartilages.

*Cartilages* are of a *white colour* and *elaftic Subftance*, and much *fofter* than Bones, in confequence of the fmaller quantity of *Earth* entering into their compofition.

Their *Structure* is not fo evidently fibrous as that of Bones, yet by long maceration, or by tearing them afunder, a fibrous difpofition is perceptible.

Their *Veffels* are extremely fmall, though they can be readily injected in Cartilages where Bone is beginning to form. The Veffels of the Cartilages of the Joints, however, feem entirely to exclude the red blood; no Anatomift having yet been able to inject them. They have no Cancelli, nor internal Membranes, for lodging Marrow; no Nerves can be traced to them; nor do they poffefs any fenfibility in the found ftate.

Upon their Surface, there is a thin Membrane termed *Perichondrium*, which in Cartilages fupplying the place of Bone, as in thofe of the Ribs, or at the ends of the long Bones in Children, is a continuation of the *Periofteum*, and

and ſerves the ſame general purpoſes to Cartilage as this does to Bone.

Upon the ſurface of Articular Cartilages, the Perichondrium is a *reflection* of the inner ſurface of the Capſular Ligament, and is ſo very thin, and adheres ſo cloſely, as to appear like part of the Cartilage itſelf.

One ſet of Cartilages ſupply the place of Bone;—or by their flexibility, admit of a certain degree of motion, while their elaſticity recovers their natural poſition,—as in the *Noſe*, *Larynx*, *Cartilages of the Ribs*, &c.

Another ſet, in Children, ſupply the place of Bone, until Bone can be formed, and afford a Nidus for the Oſſeous Fibres to ſhoot in;—as in the *long Bones of Children.*

A third ſet, and that the moſt extenſive, by the ſmoothneſs and ſlipperineſs of their ſurface, allow the Bones to move readily, without any abraſion;—as in the *Cartilages of the Joints.*

A fourth ſet ſupply the office both of Cartilage and Ligament, giving the elaſticity of the former and flexibility of the latter;—as in the *Bones of the Spine and Pelvis.*

## Of the Formation of Bone.

The generality of Bones, and particularly the *long ones*, are originally *formed in Cartilage;* ſome, as thoſe of the *Skull*, are formed between Membranes; and the *Teeth* in diſtinct bags.

When Oſſification is about to begin in a particular part of a Cartilage,—moſt frequently in the Centre,—the Arteries, which were formerly tranſparent, become dilated, and receive the red blood from which the Oſſeous matter is ſecreted. This matter retains, for ſome time, the form of the Veſſels which give it origin, till more Arteries, being by degrees dilated, and more Oſſeous matter depoſited, the Bone at length attains its complete form.

During the progreſs of Oſſification, the ſurrounding Cartilage by degrees diſappears, not by being changed into Bone, but by an abſorption of its parts, the new-formed Bone occupying its place.

The Oſſification of *broad Bones*, as thoſe of the *Head*, begins by one or more *points*, from which the Oſſeous Fibres iſſue in rays.

The

The Oſſification of long Bones, as in thoſe of the Extremities, begins by *central Rings*, from which the Fibres extend towards the ends of the Bones.

The Oſſification of *Spherical-ſhaped Bones* begins by one *Nucleus*, as in the *Wriſt*; and that of *irregular ſhaped Bones* by different *Nuclei*, as in the *Vertebræ*.

Some Bones are completely formed at the time of birth, as the *ſmall Bones of the Ear*.

The generality of Bones are *incomplete* until the age of puberty, or between the fifteenth and twentieth year, and in ſome few inſtances not until a later period.

In Children, the greater number of parts in Bones are *Epiphyſes* or *Appendices*, which, in Adults, become *Proceſſes*.

The *Epiphyſes* begin to appear after the Body of the Bone is oſſified, and are themſelves oſſified at ſeven or eight years of age, though their external ſurface is ſtill ſomewhat Cartilaginous.

In the early period of life, the body and ends of long Bones make *three diſtinct parts*, which can readily be ſeparated by boiling, or by maceration in water.

The Epiphyſes are joined to the body of the Bone by Cartilages, which are thick in Children, but gradually become thinner as Oſſification advances, till at laſt, in the Adult, the external marks of diviſion are not to be ſeen; though frequently ſome mark of diſtinction may be obſerved in the Cancelli.

# DIFFERENT KINDS

OF

# CONNECTIONS OF THE BONES.

| | | |
|---|---|---|
| *SYNARTHROSIS*, Or Connection without intermediate Subſtance. | *Suture*, Like a ſeam. | The Bones of the Cranium, and greater part of thoſe of the Upper Jaw with each other. |
| | *Gomphoſis*, Like a Nail in a board. | The Teeth in the Alveoli. |
| | *Schindelyſis*, Or *Furrowing*. | Bones of the Septum Narium to each other. |
| *SYMPHYSIS*, Or Connection by intermediate Subſtance. | *Synchondroſis*, Or Connection by Cartilage. | The Bodies of the Vertebræ to each other: The Ribs to the Sternum: The Oſſa Innominata to the Os Sacrum, or to each other. |
| | *Syndeſmoſis*, Or Connection by Ligament. | The Lower Jaw and Os Hyoides to the Head: The Ribs to the Spine: The Proceſſes of the Vertebræ, and alſo the Bones of the Extremities to each other. |

DIF-

# DIFFERENT KINDS OF MOTION.

| | | |
|---|---|---|
| *ARTHRODIA;* Where the flat ends of Bones are oppofed to each other with little motion. | | Between the Clavicle and Scapula. The Bones in the fecond row of the Carpus. The Carpus and Metacarpus. The Tibia and Fibula. The greater number of Bones in the Tarfus. The Tarfus and Metatarfus. |
| *GINGLIMUS.* The Bones mutually receiving each other; and the Ligaments admitting of a hinge-like motion. | *Angular.* One Bone in moving forming an angle with another. | The Lower Jaw and Head. The Joint of the Elbow. The firft and fecond Joints of the Thumb, and fecond and third of the Fingers. The Joint of the Knee. Ankle. The two laft Joints of the Toes. |
| | *Lateral or Circular.* | Between the firft Vertebra, and Proceffus Dentatus of the fecond. Between the Radius and Ulna. |
| | *Compound.* | Between the Occipital Bone and Atlas. Between the different Vertebræ. And between the Ribs and Vertebræ. |
| *ENARTHROSIS,* Or Ball and Socket, the Ligaments allowing motion in all directions. | | Inner end of the Clavicle. Head of the Os Humeri. Between the Fore-Arm and Wrift, and between the two rows of Carpal Bones. At the root of the Metacarpal Bone of the Thumb, and root of the firft Phalanx of the Fingers. At the Head of the Thigh-Bone. Between the Aftragalus and Os Naviculare, and at the root of the firft Phalanx of the Toes. |

OF THE

# *LIGAMENTS*

AND

# OTHER PARTS OF THE JOINTS.

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LIGAMENTS are *white*, *ſtrong*, *flexible* bodies, of an intermediate firmneſs between Cartilage and common Membrane.

They are *compoſed* of Fibres variouſly diſpoſed; the greater part of them, however, running in a longitudinal direction.

The Ligaments of moveable Joints ariſe, for the moſt part, from the *Cervix*, and beyond the edges of the articulating Cartilage of one Bone, and are fixed, in a ſimilar manner, into the correſponding parts of the other.

The Ligaments thus fixed are called *Capſular*, from their forming a *purſe* or *bag*, which includes the Joint.

Where *variety of motion* is allowed, the Capſular Ligament is nearly of equal ſtrength round the whole circumference of the Joint; but, where the Joint is of the nature of a *hinge*, the Ligament is ſtrongeſt at the ſides of that hinge.

The *outer* part of the Capſular Ligament is formed of a continuation of the *Perioſteum*, which is connected to the ſurrounding parts by Cellular Subſtance; while the *inner* Layer,—remarkably thin and denſe,—is reflected over the Bones and Cartilages which the Ligament includes; one part of it thus forming *Perioſteum*, and the other *Perichondrium*.

In certain parts of the Body there are, beſides the Capſular Ligaments, others for the firmer connection of the Bones, or for confining the motion to one particular

ſide;

ſide ; as the *round Ligament* of the Thigh, or *Crucial* or *Lateral* Ligaments of the Knee.

Wherever the Ligaments are few, long, and weak, the motions will be more extenſive ; and, on the contrary, where the Ligaments are numerous, ſhort, and ſtrong, the motions will be more limited.

In ſome parts of the Body, Ligaments ſupply the place of Bones, as in the *Pelvis :* In others, they give origin to Muſcles, as between the *Radius* and *Ulna :* In ſome parts they aſſiſt in connecting immoveable Bones ; as the *Os Sacrum* and *Os Innominatum :* In others, they form a Socket in which moveable Bones play, as where part of the *Aſtragalus* moves on the Ligament ſtretched between the *Os Calcis* and *Os Scaphoides.*

Ligaments have numerous *Blood-Veſſels* which can be readily injected.

Upon the inner ſide of the Capſular Ligaments, their *arteries* ſecrete a liquor which aſſiſts in the lubrication of the Joints.

The *Nerves* of Ligaments are ſmall, though, in ſome parts, they can be eaſily traced upon their Surface.

The *ſenſibility* of Ligaments, in the ſound ſtate, is inconſiderable ; when in a ſtate of inflammation, however, they are found to occaſion extreme pain.

*Uſe* of Ligaments.

The Capſular Ligaments connect Bones together, aſſiſt in the ſecretion of the Synovia, which they contain, and prevent the other parts from being pinched in the Joint.

The other Ligaments join Bones together, and preſerve them in their proper ſituation. In many parts, they give attachment to Tendons, and in ſome to the Fleſhy parts of Muſcles.

## Mucous Substances,

### *Commonly called* Glands *of the* Joints.

Theſe are *Maſſes of Fat* found in moſt of the Joints, covered with a continuation of the inner Layer of the Capſular Ligament, and projecting in ſuch a manner as to be gently preſſed, but not bruiſed, by the motion of the Joint ; and, in proportion as this motion is more or leſs frequent, the liquor which they ſecrete is diſcharged in a greater or ſmaller quantity.

In ſome Joints, they have the ſame appearance with Fat in other parts of the Body ; in others, they are of a

 redder

redder colour, from the great number of Blood-veſſels diſperſed upon them.

They have been commonly conſidered as *Glands* lodged within maſſes of Fat; but, upon a minute inſpection, no knotty or Glandular bodies are to be found in them, nor have they the appearance of Glands, farther than in being ſecreting ſubſtances; which circumſtance alone aſſimilates them to the nature of Glands.

From the edges of theſe Fatty bodies, *Fimbriæ* hang looſe, and convey a lubricating liquor, called *Synovia*, into the cavity of the Joints.

From the extremities of theſe *fringes*, the liquor can be readily ſqueezed out by preſſure; but their cavities and orifices are ſo minute, or are otherwiſe of ſuch a nature as to have hitherto eluded diſcovery.

The Fimbriæ have been generally conſidered as *Excretory Ducts of Glands* within the Joints. Dr Monro, however, in his Work upon the Burſæ Mucoſæ, ſuppoſes them to be of the nature of the *Follicles of the Urethra*, which prepare a Mucilaginous Liquor, without the aſſiſtance of any knotty or Glandular Organ.

The *Arteries* which ſupply theſe bodies with blood for their ſecretions, and the *Veins* which return the blood after the ſecretion, can be readily ſeen; but no *Nerves* can be traced into them; nor does it appear that they poſſeſs a higher degree of ſenſibility than the other parts of the Joints already deſcribed; although, when they inflame and ſuppurate, they have in ſome inſtances been obſerved to occaſion the moſt excruciating pain.

The *Synovia*, which is a thin Mucilaginous liquor, reſembling the glair of an egg, appears to be furniſhed, not only by the ſubſtances already mentioned, but alſo by the inner Surface of the Capſular Ligament in general, and ſerves for the lubrication of the Joints.

## Ligaments *of the* Lower Jaw.

The *Capſular Ligament*, which ariſes from the whole margin of the Articular Cavity of the Temporal Bone, and is inſerted, firſt, into the edge of the Interarticular Cartilage, and afterwards round the cervix of the lower jaw. This Ligament, like others which belong to Joints of the hinge kind, is thickeſt and ſtrongeſt at the ſides of the Joint, to confine the lateral motion of the Jaw.

By it the Jaw is allowed to move upwards, downwards,

wards, or a little forwards or backwards, or to a ſide, and the motions are rendered eaſier by the intervention of the Interarticular Cartilage, which follows the Condyle in its different motions.

The *Suſpenſory Ligament* of the Stylo-gloſſus Muſcle, which is attached by one end to the Styloid Proceſs, and to a Ligament running from that Proceſs to the *Os Hyoides;* and by the other end to the angle of the Lower Jaw, ſerving to ſupport the Stylo-gloſſus Muſcle, and give origin to part of it.

The *Lateral Ligament*, which ariſes from the margin of the Articular Cavity of the Temporal Bone, and is inſerted into the inner Surface of the angle of the Lower Jaw, near its poſterior Foramen;—aſſiſting to keep the Jaw in ſitu, and to prevent the inferior Maxillary Veſſels and Nerves from being injured by the action of the Pterygoid Muſcle.

LIGAMENTS *Connecting the* HEAD *with the Firſt and Second* VERTEBRÆ *of the* NECK, *and theſe Two* VERTEBRÆ *with each other.*

The *two Capſular Ligaments*, which ariſe from near the margin of the ſuperior articulating Proceſſes of the Atlas, and are inſerted into the Baſe of the Condyles of the Occipital Bone, where the Head has its flexion and extenſion without rotation.

The *Circular Ligament*, which ariſes from the edge of the Spinal hole of the firſt Vertebra, is connected with the Capſular Ligaments of the ſuperior Articulating Proceſſes of the Atlas, and is inſerted into the edge of the Foramen Magnum of the Occipital Bone.

The two *Capſular Ligaments* which fix the inferior oblique Proceſſes of the Atlas, to the ſuperior oblique of the Vertebra Dentata, and admit of the rotation of the Head, with a ſmall degree of motion to either ſide.

The *perpendicular Ligament*, which fixes the Proceſſus Dentatus of the ſecond Vertebra to the edge of the anterior part of the Foramen Magnum, between the Condyles.

The *two Lateral*, or *Moderator Ligaments*, which ariſe each from the ſide of the Proceſſus Dentatus, and run outwards and upwards to be fixed to the inner part of the ſide of the Atlas, and to the inner edge of the Foramen Magnum; they are ſhort, but of great ſtrength, and they prevent the Head from turning too far round.

The

The *Transverse Ligament*, which arises from the inner side of the Atlas, and, going across, behind the Processus Dentatus, is fixed to the opposite side.

The edges of this Ligament extend upwards and downwards, and form two Processes, called its *Appendices*, which are fixed to the Foramen Magnum and Processus Dentatus. The middle of the Ligament is remarkably firm where that Process plays upon it. It keeps the Processus Dentatus in its place, and prevents it from injuring the Spinal Marrow in the different motions of the Head.

### LIGAMENTS *of the Other* VERTEBRÆ.

The *Anterior Common Ligament* of the Vertebræ, which is a strong Tendinous Band, embracing the convex or fore-part of the Vertebræ, from the upper to the under region of the Spine.—It is much thicker upon the fore-part than on the sides of the Vertebræ, by which the Bones are more firmly united, and is thinner in the Neck and Loins, where the motions of the Spine are greatest, than it is on the Back. Through its whole course, it sends off small Processes to be fixed to the bodies of the Vertebræ, by which their connection is made more secure. It prevents the Spine from being stretched too much backwards.

The *Capsular Ligaments*, which join the articulating Processes to each other.

The *Crucial Intervertebral Ligaments*, which join the bodies of the Vertebræ together, upon the outer edges of the intervertebral Substances, to which also they firmly adhere.

The *Intervertebral Substances*, (already described along with the Bones), which join the bodies of the Vertebræ together, and allow an yielding motion in all directions.

These Substances are so compressible as to yield to the weight of the upper part of the Body; so that, after having been in the erect posture through the course of the day, the height of a person is diminished in the evening, but, after a night's rest in the usual attitude, it is found to be restored.

The *Ligaments* which run from the edge of the Spinal hole of one Vertebra to that of the next, so as to assist in filling up the interstices, and in fixing the Vertebræ together.

A

A *Ligamentous Cord* which fixes the point of the Spinous Processes together.

*Ligaments* between the Transverse Processes of the Vertebræ of the back, fixing these Processes to each other.

The *Posterior* or *Internal common Ligament* of the Vertebræ, somewhat similar to the anterior one.

It begins at the anterior edge of the Foramen Magnum, and after passing along the inner or concave part of the bodies of the Vertebræ, and adhering firmly to their upper and under edges, terminates at the lower part of the Os Sacrum.—It prevents the Spine from being too much bent forwards.

## Ligaments *of the* Ribs.

The *Capsular Ligaments of the Heads of the Ribs*, which arise from these Heads, and are fixed to the circumference of the Pits in the sides of the bodies of the Vertebræ and Intervertebral Cartilages;—the outer part of each Ligament sending off, or being connected with radiated fibres which are spread out upon the sides of the Vertebræ.

The *Capsular Ligaments of the Tubercles of the Ribs*, which arise round the Articular Pits on the points of the Transverse Processes of the Vertebræ of the back, and are fixed round the Tubercles of the Ribs.

The *Internal Ligaments of the Back of the Ribs*, called *Ligamenta Transversaria Interna*, which arise from the inferior Surface of the Transverse Processes, and are fixed to the superior margin of the Neck of the nearest Ribs.

The *External Ligaments of the Neck of the Ribs*, called *Ligamenta Transversaria Externa*. They arise from the point of all the Transverse Processes externally, and are fixed to the back part of the Neck of the Ribs.

*Ligamenta Cervicis Costarum Externa*, or *External Ligaments of the Neck of the Ribs*, which arise from the external margin of the inferior oblique Processes, and descend obliquely outwards, to be fixed to the upper and outer part of the Neck of all the Ribs.

The Ligaments at this end of the Ribs, together with the situation of the Transverse Processes, admit of their motion upwards and downwards, but prevent them from moving in any other direction.

*Short Ligamentous Fibres*, which run from the margin of the

the anterior extremity of the Ribs to the margin of their correſponding Cartilages; the Cartilage and Rib being joined by an union of Subſtance.

*Radiated Ligaments*, which go from the anterior Surface of the Capſular Ligaments upon the external Surface of the Sternum.

Many of the fibres of theſe Ligaments intermixing with their fellows on the oppoſite ſide.

The *Capſular Ligaments of the Cartilages of the Ribs*, which ariſe from the margin of the Articular Cavities of the Sternum, and are fixed round the extremities of the ſeven true Ribs.

*Membrane proper to the Sternum.* This is a firm expanſion compoſed of Tendinous Fibres running in different directions, but chiefly in a longitudinal one, and covering the anterior and poſterior Surfaces of the Bone, being confounded with the Perioſteum.

*Ligaments of the Cartilago Enſiformis.* They are part of the proper Membrane of the Sternum, divided into ſtrong bands which run obliquely from the under and fore-part of the ſecond Bone of the Sternum, and from the Cartilages of the ſeventh pair of Ribs, to be fixed to the Cartilago Enſiformis.—The Ligaments covering the Sternum, ſerve conſiderably to ſtrengthen that Bone.

*Thin Tendinous Expanſions*, which run over the Intercoſtal Muſcles at the fore-part of the Thorax, and connect the Cartilages of the Ribs to each other.

# LIGAMENTS

OF THE

## *BONES OF THE PELVIS.*

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The *two Tranſverſe Ligaments of the Pelvis,* which ariſe from the poſterior part of the Spine of the Os Ilium, and run tranſverſely. The *ſuperior* is fixed to the Tranſverſe Proceſs of the laſt Vertebra of the Loins ; the *inferior* to the firſt Tranſverſe Proceſs of the Os Sacrum.

The *Ileo-Sacral Ligaments,* which ariſe from the poſterior Spinous Proceſs of the Os Ilium, deſcend obliquely, and are fixed to the firſt, third, and fourth ſpurious Tranſverſe Proceſſes of the Os Sacrum.

Theſe, with the two Tranſverſe Ligaments, aſſiſt in binding the Bones together, to which they are connected.

The *Capſular Ligament of the Symphyſis of the Os Ilium and Sacrum,* which ſurrounds the Joint, and aſſiſts in connecting the two Bones to each other.

A *very thin Cartilage* within this Joint, which cements the two Bones ſtrongly together, and which conſtantly adheres to the Os Sacrum, when the Joint is opened.

The back-part of the Joint, formed of a *Ligamentous* and *Cellular Subſtance,* containing *Mucus,* which alſo aſſiſts in fixing the two Bones to each other, in ſuch a manner as to allow no motion. The Joint, however, along with its fellow, and that between the Oſſa Pubis, are uſeful in diminiſhing the effects which might reſult from concuſſion.

The *two Sacro-Iſchiatic Ligaments* ſituated in the under and back part of the Pelvis. They ariſe in common from the Tranſverſe Proceſſes of the Os Sacrum, and likewiſe from the under and lateral part of that Bone, and from the upper part of the Os Coccygis. The firſt,

called

called the *Large*, *External*, or *Poſterior*, deſcends obliquely, to be fixed to the tuberoſity of the Os Iſchium. The other, called the *Small*, *Internal*, or *Anterior*, runs tranſverſely to be fixed to the Spinous Proceſs of the Os Iſchium. Theſe two Ligaments aſſiſt in binding the Bones of the Pelvis, in ſupporting its contents, and in giving origin to part of its Muſcles.

There are *two Membranous Productions* which are connected with the large Sacro-Iſchiatic Ligament, termed by WEITBRECHT, its *Superior* and *Inferior Appendices*.

The *Superior Appendix*, which is Tendinous, ariſes from the back-part of the Spine of the Os Ilium, and is fixed along the outer edge of the Ligament, which it increaſes in breadth.

The *Inferior*, or *Falciform Appendix*, ſituated within the cavity of the Pelvis, the back-part of which is connected with the middle of the Large External Ligament, and the reſt of it is extended round the Curvature of the Os Iſchium.

Theſe two productions aſſiſt the large Sacro-Iſchiatic Ligament in furniſhing a more commodious ſituation for and inſertion of part of the Gluteus Maximus and Obturator Internus Muſcles.

Beſides the *Ileo-Sacro*, and *Sacro Iſchiatic* Ligaments, ſeveral other *Slips* are obſerved upon the back of the Os Sacrum, which deſcend in an irregular manner, and ſtrengthen the connection between that Bone and the Os Ilium.

The large Holes upon the back-part of the Os Sacrum are alſo ſurrounded with various *Ligamentous Expanſions* projecting from one Tubercle to another, and giving origin to Muſcular Fibres, and protection to ſmall Veſſels and Nerves which creep under them.

A *General Covering* ſent down from the Ligaments of the Os Sacrum, which ſpreads over and connects the different pieces of the Os Coccygis together, allowing conſiderable motion, as already mentioned in the deſcription of this Bone.

*Longitudinal Ligaments of the Os Coccygis*, which deſcend from thoſe upon the Dorſum of the Os Sacrum, to be fixed to the back-part of the Os Coccygis. The Ligaments of this Bone prevent it from being pulled too much forwards by the action of the Coccygeus Muſcle, and they reſtore the Bone to its natural ſituation, after the Muſcle has ceaſed to act.

The

The *Inguinal Ligament*, or *Poupart's*, or *Fallopius's Ligament*, which runs tranſverſely from the anterior ſuperior Spinous Proceſs of the Os Ilium to the creſt or angle of the Os Pubis. It has been formerly deſcribed as the under margin of the Tendon of the External Oblique Muſcle of the Abdomen. By WEITBRECHT and ſome others, it is regarded as a diſtinct Ligament. It contributes to the ſupport of the Viſcera at the under end of the Abdomen, and furniſhes a paſſage to the Muſcles, Veſſels, and Nerves, which go behind it from the Pelvis to the Thigh.

The *Capſular Ligament of the Symphyſis of the Oſſa Pubis*, which joins the two Bones to each other externally.

The *Ligamentous Cartilage*, which unites the two Oſſa Pubis ſo firmly together as to admit of no motion; excepting in the ſtate of pregnancy, when this Ligamentous Cartilage is frequently found to be ſo much thickened as to yield a little in the time of Delivery.

The *Obturator Membrane*, or *Ligament of the Foramen Thyroideum* It adheres to the margin of the Foramen Thyroideum, and fills the whole of that opening, excepting the oblique notch at its upper part, for the paſſage of the Obturator Veſſels and Nerve. It aſſiſts in ſupporting the contents of the Pelvis, and in giving origin to the Obturator Muſcles.

LIGA-

# LIGAMENTS

OF THE

# *SUPERIOR EXTREMITY.*

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### CONNECTION *of the* INNER END *of the* CLAVICLE.

*Radiated Ligaments*, which ariſe from the Surface of the inner end of the Clavicle, and are fixed round the edge of the correſponding Articular Cavity of the Sternum.

The *Capſular Ligament* which lies within the former.

The *Inerarticular Cartilage*, which divides the Joint into two diſtinct Cavities, and accommodates the articulating Surfaces of the Clavicle and Sternum.

The *Interclavicular Ligament*, joining the Clavicles together behind the top of the Sternum, and partly formed by a continuation of the radiated Ligaments.

The *Ligamentum Rhomboideum*, which ariſes from the inferior rough Surface at the anterior extremity of the Clavicle, and is fixed to the Cartilage of the firſt Rib.

By the Ligaments of this Joint, with the aſſiſtance of the intervening Cartilage, the ſhoulder is allowed to move in different directions, as upon a center.

The *Ligaments* which join the poſterior extremity of the Clavicle to the Acromion, and have a Capſular Ligament within, and ſometimes an interarticular Cartilage.

The *Ligamentum Trapezoideum*, which ariſes from the point of the Coracoid Proceſs, and is fixed to the under edge of the Clavicle.

A *thin Ligamentous Slip* which comes from the Tendon of the Subclavian Muſcle, or from the Clavicle, and joins the Trapezoid Ligament.

The Ligaments fixing the Clavicle to the Scapula are of

of ſuch ſtrength, as to allow only a ſmall degree of motion, and that chiefly of a rolling or twiſting nature.

## LIGAMENTS *proper to the* SCAPULA.

The *Proper Anterior Triangular Ligament of the Scapula*, which ariſes broad from the external Surface of the Coracoid Proceſs, and becomes narrower where it is fixed to the poſterior margin of the Acromion.

This Ligament forms one continued Surface. It is thickeſt, however, on each ſide, and theſe thicker parts are united by a thin intermediate Ligamentous Membrane, which, when removed, gives to the Ligament the appearance of being double.—It confines the Tendon of the Supraſpinatus Muſcle, and aſſiſts in protecting the upper and inner part of the Joint of the Humerus.

The *Poſterior Ligament of the Scapula*, which is ſometimes double, and is ſtretched acroſs the ſemilunar notch of the Scapula, forming that notch into one or two holes for the paſſage of the ſuperior poſterior Scapulary Veſſels and Nerves. It alſo gives riſe to part of the Omo-Hyoideus Muſcle.

## LIGAMENTS, &c. *of the* JOINT *of the* SHOULDER.

The *Capſular Ligament*, which ariſes from the Cervix of the Scapula, behind the margin of the Glenoid Cavity, and is fixed round the Neck of the Os Humeri, looſely incloſing the Ball of that Bone.

A *Fimbriated Organ* within the Capſular Ligament, for the ſecretion of the Synovia.

A *Sheath* ſent down from the fore-part of the Capſular Ligament, between the Tuberoſities of the Os Humeri, which incloſes the Tendon of the long Head of the Biceps Flexor Cubiti Muſcle.

*Additional Ligamentous Bands* of the Capſular Ligament, which adhere to its anterior Surface.—That which gives moſt ſtrength to this Joint, as well as to ſeveral other Joints of the Body, is the covering from the ſurrounding Muſcles.

From the ſhallowneſs of the Glenoid Cavity, from the extent and looſeneſs of the Capſular Ligament, and from the Structure of the other parts of the Joint, more extenſive motion is allowed to the Os Humeri than to any other Bone of the Body; as it cannot only move freely to every ſide, but poſſeſſes a conſiderable degree of motion upon its own axis.

## LIGAMENTS, &c. *of the* JOINT *of the* ELBOW.

The *Capſular Ligament*, which ariſes round the margin of the Articular Surface, at the lower end of the Os Humeri, and is fixed about the edge of the Articular Surface of the Ulna, and alſo to the Coronary Ligament of the Radius.

The ſides of the Elbow-Joint are ſtrengthened by *two Ligamentous Bands*, which adhere ſo firmly to the Capſular Ligament, that they appear to be part of its Subſtance, viz.

The *Brachio cubital* or *Internal Lateral Ligament*, which ariſes from the fore-part of the inner condyle of the Os Humeri, and ſpreads out, in a radiated manner, to be fixed to the inſide of the Coronoid Proceſs of the Ulna, and

The *Brachio-Radial*, or *External Lateral Ligament*, which is like the former, but larger. It ariſes from the external Condyle of the Os Humeri, and ſpreads out upon the Coronary Ligament, to which it is inſerted.

The *Coronary*, *Annular*, or *Orbicular Ligament* of the *Radius*, which ariſes from one ſide of the ſmall Semilunar Cavity of the Ulna, and after ſurrounding the neck of the Radius, is fixed to the other ſide of that Cavity. The upper edge of it is incorporated with, and may be conſidered as a part of the Capſular Ligament, while its under edge is fixed round the neck of the Radius, allowing that Bone to move freely round its own axis, upon the Articular Surface of the Os Humeri, and in the ſmall Semilunar Cavity of the Ulna.

Beſides the Ligaments already deſcribed, there are others which run in various directions upon the fore and back parts of the Joint, contributing to its ſtrength, and having the names of *Anterior* and *Poſterior Acceſſory Ligaments*.

The Ligaments and Bones of the Joint of the Elbow form a complete hinge, which allows the fore-arm to have free flexion and extenſion upon the Os Humeri, but no rotation when the Arm is in the extended ſtate, though a ſmall degree of it is perceptible when the Joint is moderately bent, and the Ligaments thereby relaxed.

Within the Capſular Ligament, and chiefly in the upper part of the pits of the Os Humeri, in which the Olecranon and Coronoid Proceſs of the Ulna play, the *Fatty Subſtance* is lodged for the lubrication of the Joint.

## Ligaments *between the bodies and Under Ends of the* Radius *and* Ulna.

The *Interoſſeous Ligament*, which extends between the ſharp ridges of the Radius and Ulna, filling up the greater part of the ſpace between theſe two Bones, and compoſed of ſmall *Faſciculi*, or *Fibrous ſlips*, which run obliquely downwards and inwards. Two or three of theſe, however, go in the oppoſite direction; and one of them, termed *Oblique Ligament*, and *Chorda Tranſverſalis Cubiti*, is ſtretched between the Tubercle of the Ulna and under part of the Tubercle of the Radius.—In different parts of the Ligament there are perforations for the paſſage of Blood-veſſels from the fore to the back-part of the Bone, and a large opening is found at the upper part of it, which is filled up by Muſcles. It prevents the Radius from rolling too much outwards, and furniſhes a commodious attachment for Muſcles.

The *Capſular*, or *Sacciform Ligament*, which ariſes from the edges of the Glenoid Cavity of the under end of the Radius, and ſurrounds the head of the Ulna, allowing the Radius to turn upon the Ulna in performing the different motions of pronation and ſupination of the Hand.

## Ligaments, &c. *between the* Fore-Arm *and* Wrist.

The *Capſular Ligament*, which ariſes from the margin of the extremity of the Radius, and from the edge of the moveable Cartilage at the head of the Ulna, and is fixed to the Cartilaginous edges of the three firſt Bones of the Carpus.

The *Interarticular Cartilage* placed between the head of the Ulna and Os Cuneiforme, and which is a continuation of the Cartilage covering the end of the Radius.

The *Two Lateral Ligaments* which ariſe from the Styloid Proceſs of the Radius and Ulna, and are fixed to the Bones of the Carpus neareſt them.

The Ligaments of this Joint allow extenſive motion forwards and backwards, and a conſiderable degree of it to either ſide.

The *Mucous Ligament* which lies within the Joint. It extends from the groove between the two firſt Bones of the Carpus, to the correſponding part of the Radius, and is ſuppoſed to regulate the Mucous Organ connected with it.

## Ligaments *of the* Carpus.

The *Anterior*, *Annular*, or *Tranſverſe Ligament*, which is ſtretched acroſs from the projecting points of the Piſiform and Unciform Bones, to the Os Scaphoides and Trapezium, and forms an arch which covers and preſerves in their places the Tendons of the Flexor Muſcles of the Fingers.

The *Capſular Ligament* which ariſes from the Cartilaginous edges of the upper row, and is fixed in a ſimilar manner to thoſe of the under row of the Carpus, admitting chiefly of flexion and extenſion, and that in a ſmaller degree than in the former Joint.

The *ſhort Ligaments* of the Bones of the Carpus, which are *ſmall Ligamentous ſlips* running in various directions, joining the different Bones of the Carpus,—firſt of the ſame Row, then of the two Rows together. They are termed *Oblique*, *Tranſverſe*, *Capſular*, and *Proper* Ligaments of the Bones of the Wriſt, and admit only of a ſmall degree of yielding between the different Bones in the ſame Row.

## Ligaments *between the* Carpal *and* Metacarpal Bones.

The *Articular Ligaments* which ariſe from the margins of the ſecond row of the Carpal Bones, and are fixed to the margins of the baſes of thoſe of the Metacarpus. *Other Ligaments* run in a radiated manner from the Carpal to the Metacarpal Bones; the whole getting the names of *Articular*, *Lateral*, *Straight*, *Perpendicular*, *&c.* according to their different directions.

From the flatneſs of the articular Surfaces, and ſtrength of the connecting Ligaments, very little motion is allowed between the Carpus and Metacarpus.

## Ligaments *between the Extremities of the* Metacarpal Bones.

The *Interoſſeous Ligaments* at the *Baſes* of the Metacarpal Bones. They are ſhort ſlips, which run tranſverſely, and join theſe Bones to each other, obtaining the names of *Dorſal*, *Lateral*, or *Palmar*, according to their different ſituations.

The *Interoſſeous Ligaments* at the *Heads* of the Meta-

carpal Bones, which run tranfverfely in the Palm, and connect the heads of thefe Bones to each other.

## Ligaments *at the Bafe of the* Metacarpal Bone *of the* Thumb, *and of the Firft* Joint *of the* Fingers.

Thefe confift of the *Capfular Ligaments* which inclofe the Joints, and the *Lateral Ligaments* which are fituated at the fides of the former, adhering to and ftrengthening them; the whole admitting of flexion, extenfion, and lateral motion.

## Ligaments *of the Firft and Second* Joints *of the* Thumb, *and Second and Third* Joints *of the* Fingers.

The *Capfular Ligaments* inclofing the Joints.

The *Lateral Ligaments* placed at the fides of the Joints, and adhering to the Capfular Ligaments, confining the motion to flexion and extenfion.

## Ligaments *retaining the* Tendons *of the* Muscles *of the* Hand *and* Fingers *in fitu.*

The *Anterior*, *Tranfverfe*, or *Annular Ligament* of the Wrift,—already defcribed.

The *Vaginal Ligaments* of the Flexor Tendons, which are fine Membranous Webs connecting the Tendons of the Sublimis, firft to each other, then to thofe of the Profundus, and forming, at the fame time, Burfæ Mucofæ which furround the Tendons.

The *Vaginal*, or *Crucial Ligaments of the Phalanges*, which arife from the ridges on the concave fide of the Phalanges, and run over the Tendons of the Flexor Mufcles of the Fingers. Upon the body of the Phalanges, they are thick and ftrong, to bind down the Tendons; but over the Joints they are thin, and have, in fome parts, a Crucial appearance, to allow the ready motion of the Joints.

*The Acceffory Ligaments of the Flexor Tendons of the Fingers*, which are *fmall Tendinous Fræna*, arifing from the firft and fecond Phalanges of the Fingers. They run obliquely forwards within the Vaginal Ligaments, terminate in the Tendons of the two Flexor Mufcles of the Fingers, and affift in keeping them in their places.

The *External Tranfverfe Ligaments of the Wrift*, which is

is part of the Aponeurosis of the Fore-Arm, extending across the back of the Wrist, from the extremity of the Ulna and Os Pisiforme to the extremity of the Radius. It is connected with the small Annular Ligaments which tie down the Tendons of the Extensores Ossis Metacarpi et primi Internodii Pollicis, and the Extensor Carpi Ulnaris.

The *Vaginal Ligaments* which adhere to the former Ligaments, and serve as sheaths and Bursæ Mucosæ to the Extensor Tendons of the Hand and Fingers.

The *Transverse Ligaments* of the Extensor Tendons, which are Aponeurotic slips running between the Tendons, near the heads of the Metacarpal Bones, and retaining them in their places.

# LIGAMENTS

OF THE

## *INFERIOR EXTREMITY.*

### LIGAMENTS *connecting the* OS FEMORIS *with the* OS INNOMINATUM.

THE *Capſular Ligament*, which is the largeſt and ſtrongeſt of the Body, ariſes round the outſide of the Brim of the Acetabulum, embraces the head of the Thigh-bone, and incloſes the whole of its Cervix to the root or outer extremity, round which it is firmly connected.

The *outer part* of the Capſular Ligament is extended farther down than the *inner*, which is reflected back upon the neck of the Bone, and in certain parts forms *Retinacula*.

It is not every where of the ſame ſtrength. It is thickeſt anteriorly; thinner where it is covered by the internal Iliac Muſcle; and thinneſt poſteriorly, where the adjacent Quadratus Muſcle is oppoſed to it.

It is ſtrengthened on its outer Surface by various *acceſſory* or *additional ſlips*, which run down from the Faſcia Lata and ſurrounding Muſcles; but the ſtrongeſt of theſe ſlips ariſes with diverging Fibres from the inferior anterior Spinous Proceſs of the Os Ilium. The Capſular Ligament allows the Thigh-Bone to be moved to every ſide, and to have a ſmall degree of rotation.

The *Internal*, commony called the *Round Ligament*, which ariſes by a broad flat beginning from the under and inner part of the Cavity of the Acetabulum, and is connected with the Subſtance termed *Gland of the Joint*. From this it runs backwards and a little upwards, becoming gradually narrower and rounder, to be fixed to the Pit upon the inner Surface of the Ball of the Os Femoris.

The round Ligament prevents the Bone from being diſlocated upwards, and aſſiſts in agitating the Mucous Subſtance within the Joint.

A *Catilaginous Ligament* ſurrounding the Brim of the Acetabulum,

Acetabulum, andthereby increasing the depth of that cavity for the reception of the head of the Thigh-Bone.

A *double Cartilaginous Ligament*, stretched from one end of the breach, in the under and fore-part of the Acetabulum, to the other, but leaving a hole behind it for containing part of the Substance called *Gland of the Joint*, and for the passage of the Vessels of that Substance.

This Ligament allows the Thigh-bone to be moved inwards, and the Glandular-looking Substance to be agitated with safety.

The Substance called *Gland of the Joint*, covered with a Vascular Membrane, and lodged in a depression in the under and inner part of the Acetabulum.

At the edges of this Substance, *Fringes* are sent out, which furnish part of the Synovia for the lubrication of the Joint.

The edges of this Substance are fixed to those of the Pit in the Acetabulum, by small Ligamentous Bridles, termed *Ligamenta Mucosa*, or *Ligamentula Massæ Adiposo-Glandulosæ*.

### Ligaments, &c. *of the* Joint *of the* Knee.

The *Lateral Ligaments* which lie at the sides of the Joint, and adhere to the outer Surface of the Capsular Ligament.

The *Internal Lateral Ligament*, which is of considerable breadth, arises from the upper part and Tubercle of the internal Condyle of the Os Femoris, and is inserted into the upper and inner part of the Tibia.

The *long External Lateral Ligament*, which is narrower, but thicker and stronger than the former, arises from the Tubercle above the external condyle of the Os Femoris, and is fixed to the Fibula, a little below its head.

Behind the long external Lateral Ligament, there is an *Expansion* attached nearly in the same manner as this Ligament, and has been termed the *external short Lateral Ligament*.

These Ligaments prevent lateral motion, and the rolling of the Leg in the extended state, but admit of a small degree of both these motions when the Limb is bent.

The *Posterior Ligament* of Winslow, formed of irregular bands which arise from the upper and back-part of the external condyle of the Os Femoris, and descend obliquely

obliquely over the Capſular Ligament, to be fixed under the inner and back-part of the head of the Tibia,—preventing the Leg from being pulled farther forwards than to a ſtraight line with the Thigh. It alſo furniſhes a convenient ſituation to the beginnings of the Gaſtrocnemius and Plantaris Muſcles.

When this Ligament is wanting, which is ſometimes the caſe, its place is then ſupplied by a *Membranous Expanſion.*

The *Ligament of the Patella,* which ariſes from a depreſſion behind the Apex of the Bone, and is fixed to the Tuberoſity of the Tibia. By the intervention of this Ligament, the Muſcles fixed to the Patella are enabled to extend the Leg.

The *Capſular Ligament* which ariſes from the whole circumference of the under end of the Thigh-bone, ſome way above the margin of the articulating Cartilage, and above the poſterior part of the great notch between the Condyles. From this it deſcends to be fixed round the head of the Tibia, and into the whole margin of the Articulating Surface of the Patella, in ſuch a manner that this Bone forms part of the Capſule of the Joint.

The Capſular Ligament is of itſelf remarkably thin, but ſo covered by the Ligaments already mentioned, by the general Aponeuroſis, and by the Tendons of Muſcles which ſurround the Joint, as to acquire a conſiderable degree of ſtrength.

The Capſular Ligament, along with the other Ligaments of this Joint, admit of the flexion and extenſion of the Leg, but of no lateral nor rotatory motion in the extended ſtate, though of a ſmall degree of each when the Limb is fully bent.

*Ligamentum Alare, majus et minus,* which are folds of the Capſular Ligament, running like *wings* at the ſides of the Patella, to which, and to the Fatty Subſtance of the Joint, they are attached.

*Ligamentum Mucoſum,* which is continued from the joining of the Alar Ligaments to be fixed to the Os Femoris, immediately above the anterior Crucial Ligament, and which preſerves the Fatty Subſtance of the Joint in its proper place, in the various motions of the Joint.

The *two Crucial,* or *internal Ligaments* which ariſe from the hollow between the Condyles of the Os Femoris, and decuſſate each other within the cavity of the Joint.

The

The *anterior Crucial Ligament*, which runs downwards and forwards, to be fixed to a Pit before the rough Protuberance in the middle of the Articulating Surface of the head of the Tibia.

The *posterior Crucial Ligament*, which runs downwards, to be fixed to a Pit behind the above-mentioned rough Protuberance.

These Ligaments, in the extended state of the Leg, prevent it from going forwards beyond a straight Line. When the knee is bent, they admit the Foot to be turned outwards, but not inwards.

The *two Interarticular Cartilages*, called Semilunar from their shape, placed upon the top of the Tibia.

The outer convex edge of each of these Cartilages is thick, while the inner concave edge becomes gradually thinner, whereby the Sockets for the Condyles of the Os Femoris are rendered deeper, and this Bone and the Tibia more accurately adapted to each other.

Each of these Cartilages is broad in the middle, and their extremities become narrower and thinner as they approach each other. These extremities are termed *Cornua*, and are fixed by Ligaments to the Protuberance of the Tibia. The anterior Cornua are joined to each other by a *Transverse Ligament*.

The convex edge of these Cartilages is fixed to the Capsular and other Ligaments, in such a manner as to allow them to play a little upon the Cartilaginous Surface of the Tibia, by which the motions of that Bone upon the Condyles of the Os Femoris are facilitated.

The *Mucous*, or *Fatty Substances* of the Joint, which are the most considerable of any in the Body, and are situated in the different interstices of the Joint, but chiefly round the edges of the Patella.

The *Fimbriæ*, which discharge Synovia for the lubrication of the Joint, projecting from the edges of the Fatty Substance.

### LIGAMENTS *connecting the* FIBULA *to the* TIBIA.

The *Capsular Ligament* of the superior extremity of the Fibula, which ties it to the outer part of the head of the Tibia, and which is strengthened by the external Lateral Ligament of the Knee, and by the Tendon of the Biceps Muscle which is fixed to the Fibula.

The *Interosseous Ligament* which fills the space between the Tibia and Fibula, like the Interosseous Ligament

ment of the Fore-arm, and is of a ſimilar ſtructure, being formed of oblique Fibres, and perforated in various places for the paſſage of Veſſels and Nerves.

At the upper part of it there is a large opening, where the Muſcles of the oppoſite ſides are in contact, and where Veſſels and Nerves paſs to the fore-part of the Leg.

It ſerves chiefly for the origin of part of the Muſcles which belong to the Foot.

The *Ligaments* of the inferior extremity of the Fibula, which are called *Anterior ſuperior* and *Poſterior ſuperior*, according to their ſituations. They ariſe from the edges of the Semilunar cavity of the Tibia, and are fixed to the Malleolus Externus of the Fibula.

The Ligaments between the ends of the Tibia and Fibula fix the two Bones ſo firmly together as to admit of no ſenſible motion.

### LIGAMENTS *connecting the* BONES *of the* TARSUS *with thoſe of the* LEG.

The *Anterior Ligament of the Fibula*, which ariſes from the anterior part of the Malleolus Externus, and paſſes obliquely forwards, to be fixed to the upper and outer part of the Aſtragalus.

The *middle*, or *perpendicular Ligament* of the Fibula, which ariſes from the point of the Malleolus Externus, and deſcends almoſt perpendicularly, to be fixed to the outſide of the Os Calcis.

The *Poſterior Ligament of the Fibula*, which ariſes from the under and poſterior part of the Malleolus Externus, and runs backwards, to be fixed to the outer and poſterior part of the Aſtragalus.

The *Ligamentum Deltoides* of the Tibia, which ariſes from the Malleolus Internus, and deſcends in a radiated form, to be fixed to the Aſtragalus, Os Calcis, and Os Naviculare

The *Capſular Ligament*, which lies within the former Ligaments, and is remarkably thin, eſpecially before and behind, for the readier motion of the Joint. It ariſes from the margin of the Articular Cavity of the Tibia and Fibula, and is fixed round the edge of the Articular Surface of the Aſtragalus.

The Ligaments and other parts of the ſtructure of the Ankle-Joint form it into a complete hinge, which allows flexion and extenſion, but no rotation or lateral motion,

in the bended ſtate of the Foot, though a ſmall degree of each when it is fully extended.

### Ligaments *of the* Tarsus.

The *Capſular Ligament*, which fixes the Articular Surface of the Os Calcis to that of the Aſtragalus.

A number of *ſhort Ligaments* lying in the Foſſa of the Aſtragalus and of the Os Calcis, and forming the *Ligamentous apparatus* of the Sinuous Cavity, which aſſiſts in fixing the two Bones ſtrongly together.

The *Capſular*, the *broad Superior*, and the *internal Lateral Ligaments*, connecting the Aſtragalus to the Os Naviculare, and admitting of the lateral and rotatory motion of the Foot.

The *ſuperior*, the *lateral*, and the *inferior Ligaments*, fixing the Os Calcis to the Os Cuboides, where a ſmall degree of motion is allowed to every ſide. The inferior Ligaments conſiſt of a *long*, an *oblique*, and a *Rhomboid Ligament*, which are the longeſt and ſtrongeſt of the Sole.

The *ſuperior-ſuperficial*, the *Interoſſeous*, and the *inferior Tranſverſe* Ligaments, which fix the Os Naviculare and Os Cuboides to each other.

The *ſuperior-lateral*, and *Plantar Ligaments*, which fix the Os Naviculare to the Os Cuneiforme.

The *ſuperior-ſuperficial*, and the *Plantar Ligaments*, which connect the Os Cuboides to the Os Cuneiforme Externum.

The *Dorſal* and *Plantar Ligaments*, which unite the Oſſa Cuneiformia to each other.

Beſides the Capſular Ligaments of the Tarſus already mentioned, each of the other Joints of theſe Bones is furniſhed with its *proper Capſular Ligament*.

From the ſtrength of the Ligaments which unite theſe Bones to each other, and from the plainneſs of their Articulating Surfaces, no more motion is allowed than to prevent the effects of concuſſion in walking, leaping, &c.

### Ligaments *between the* Tarsus *and* Metatarsus.

The Bones of the Metatarſus fixed to thoſe of the Tarſus by *Capſular*, and numerous *other Ligaments*, which are called *Dorſal*, *Plantar*, *Lateral*, according to their ſituations;—and *Straight*, *Oblique*, or *Tranſverſe*, according to their directions. The nature of this Joint is the ſame with that between the Carpus and Metacarpus.

Ligaments

LIGAMENTS *connecting the* METATARSAL BONES *to each other.*

The *Dorſal*, *Plantar*, and *Lateral Ligaments*, which connect the baſes of the Metatarſal Bones with each other.

The *Tranſverſe Ligaments*, which join the heads of theſe Bones together.

LIGAMENTS *of the* PHALANGES *of the* TOES.

The *Capſular* and *Lateral Ligaments*;—as in the Fingers.

LIGAMENTS *and* SHEATHS *retaining the* TENDONS *of the* MUSCLES *of the* FOOT *and* TOES, *in ſitu.*

The *Annular Ligament of the Tarſus*, which is a thickened part of the Aponeuroſis of the Leg, ſplitting into ſuperior and inferior portions, which bind down the Tendons of the Extenſors of the Toes, upon the fore-part of the Ankle.

The *Vaginal Ligament of the Tendons of the Peronei Muſcles*, which, behind the Ankle, is common to both, but, at the outer part of the Foot, becomes proper to each. They preſerve the Tendons in their places, and are the *Burſæ* of theſe Tendons.

The *Laciniated Ligament* which ariſes from the inner Ankle, and ſpreads in a radiated manner, to be fixed partly in the Cellular Subſtance and Fat, and partly to the Os Calcis, at the inner ſide of the heel. It incloſes the Tibialis Poſticus and Flexor digitorum Longus.

The *Vaginal Ligament of the Tendon of the Extenſor Proprius Pollicis*, which runs in a Crucial direction.

The *Vaginal Ligament of the Tendon of the Flexor Longus Pollicis*, which ſurrounds this Tendon in the hollow of the Os Calcis.

The *Vaginal* and *Crucial Ligaments of the Tendons of the Flexors of the Toes*, which incloſe theſe Tendons on the Surfaces of the Phalanges, and form their Burſæ Mucoſæ.

The *Acceſſory Ligaments of the Flexor Tendons of the Toes*, which,—as in the Fingers,—ariſe from the Phalanges, and are included in the Sheaths of the Tendons in which they terminate.

The *Tranſverſe Ligaments of the Extenſor Tendons*, which run between them, and preſerve them in their places behind the roots of the Toes.

*END OF VOLUME FIRST.*

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